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NEW VIEWS ON THE PATHOLOGY, DIAGNOSIS, AND TREATMENT OF GASTRIC AND DUODENAL ULCER.

A BRITISH MEDICAL ASSOCIATION LECTURE DELIVERED BEFORE THE TUNBRIDGE WELLS DIVISION ON JANUARY 20TH, 1920.

BY

ARTHUR F. HURST, M.A., M.D.OXON., F.R.C.P.,

PHYSICIAN AND NEUROLOGIST TO GUY'S HOSPITAL.

THE GASTRIC ULCER AND DUODENAL ULCER "DIATHESES."

THE exciting conditions which give rise to gastric and duodenal ulceration are common to many people who never develop an ulcer, so that the question arises, What is it about one individual that makes him liable to gastric ulcer, about a second that makes him liable to duodenal ulcer, and about others—the majority of people—that save them from being liable to either?

I propose to offer an answer to this question, which will in turn suggest methods of prophylaxis and of after-care which should render the patient treated by the most approved medical means even less liable to relapse than the patient who has undergone an operation, but without running the small but undoubted risks inseparable from the latter.

FIG. 1.—Average normal stomach.

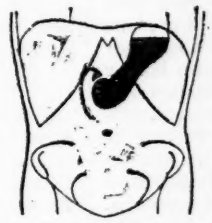


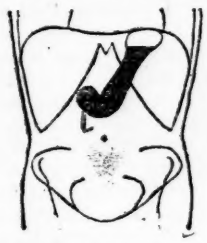
FIG. 2.—Hypertonic type of normal stomach.

FIG. 3.—Hypotonic type of normal stomach.

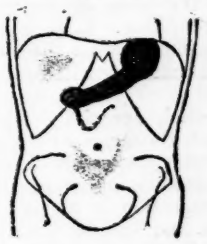
Although there is a certain shape and position which may be regarded as the average normal stomach (Fig. 1), considerable variations occur in two directions. Whereas with a standard opaque meal the greater curvature of the average or orthotonic stomach reaches the umbilicus or just below it in the erect position, in some normal individuals the stomach is hypertonic, and in others it is hypotonic. In the former the stomach curves obliquely to the pylorus, which is almost its lowest point, and the greater curvature is situated some distance above the umbilicus (Fig. 2); in the latter the stomach is hook-shaped, and the greater curvature is situated more than an inch below the umbilicus, the upper level of the gastric contents being correspondingly low (Fig. 3). The hypertonic stomach generally empties itself more rapidly than the average normal one, and the hypotonic stomach generally, but not so constantly, empties itself less rapidly.

Rehfuss has recently introduced a method of gastric analysis which is destined, I believe, to have a profound influence on our knowledge of the physiology and pathology of the stomach. Instead of passing a tube an hour after a meal and then emptying the stomach, a perforated metal bulb is swallowed just before the meal; attached to it is a fine rubber tube, the end of which remains hanging out of the patient's mouth. The stomach is emptied of its fasting contents; the test meal is then taken and a small quantity is aspirated through the tube every quarter of an hour until digestion is finished. By means of this "fractional test meal" a curve can be constructed showing the quantity of free and active hydrochloric acid present at each period of digestion. Rehfuss and Crohn of New York have found three types of curve in normal individuals—the average normal or isosecretion, hypersecretion, and hyposecretion.

Although comparative investigations of the motor functions, as ascertained with the *x* rays, and of the secretory functions, as determined by the fractional test meal, have not yet been carried out on a large scale, there is reason to believe that the hypertonic stomach generally shows hypersecretion. The hypotonic stomach generally shows hyposecretion, but it may—and this is a very important fact—also show hypersecretion.



(A) Vertical position.



(B) Horizontal position.

FIG. 4.—Duodenal ulcer with thirty years' history. Hypertonic stomach hides duodenal cap.

Barclay and I, working independently, found that the stomach in cases of duodenal ulcer is hypertonic (Fig. 4) and empties with unusual rapidity, the onset of pain corresponding with the moment when the stomach has almost entirely emptied itself. More recently it has become recognized that the stomach in cases of gastric ulcer is generally somewhat hypotonic, and almost invariably empties itself more slowly than the average normal.

One of the earliest discoveries resulting from gastric analysis was the frequent association of hyperchlorhydria with gastric and duodenal ulcer. The more accurate investigations of Crohn by means of fractional test meals show that hypersecretion and hyperchlorhydria are constantly present in both of these conditions.

I have had several opportunities of examining patients who have recovered from duodenal ulcer as a result of medical treatment, occasionally after many years of complete freedom from symptoms. The hypertonic, rapidly emptying stomach has always been found to be still present. One of the group of six patients with symptoms of duodenal ulcer upon whom Sir Berkeley Moynihan operated when I visited his clinic for the first time in 1909 was found at the operation to have no trace of an ulcer, and therefore nothing more was done. This was his first attack, and the symptoms had only been present a few months. But I had previously demonstrated with the *x* rays that his stomach was hypertonic and emptied rapidly, just like the other five cases in which an ulcer was found. These observations prove, I think, that the characteristic *x*-ray appearance of the stomach in duodenal ulcer is not due to the ulcer, as it is present before it develops and persists after it has healed.

The same thing is true with regard to secretion, as Crohn has found that the curve shows the same hypersecretion and hyperchlorhydria after a gastric or duodenal ulcer has healed under medical treatment as it did before treatment began.

The conclusion which can, I think, be reasonably drawn from these facts is that there is one type of stomach in which a gastric ulcer will develop and another type which is likely to lead to ulceration of the duodenum, if the necessary exciting causes are present, but the latter will not give rise to ulceration at all in an individual with the average normal type of stomach.

I have seen a number of cases in which two or more brothers and sisters have suffered from gastric and from duodenal ulcer, and still more in which brothers and sisters of a patient with a gastric or duodenal ulcer have had symptoms of a similar character, but so much less severe that it seemed impossible that actual ulceration was present. In the most remarkable duodenal ulcer family I have met with the father and two out of nine children were dyspeptic, and four others had typical symptoms of duodenal ulcer, one dying from a perforation. It is a remarkable fact that I have never seen one member of a family with a gastric ulcer and another with a duodenal ulcer. This suggests that the types of stomach which predispose to the development of gastric and of duodenal ulcer respectively are congenital, and either one or the other may exist in several members of a family.

THE EXISTING CAUSES OF GASTRIC AND DUODENAL ULCER.

An ulcer of the peculiar type found in the stomach occurs nowhere else in the body except the first part of the duodenum and the part of the jejunum immediately adjoining the stoma of a gastro-enterostomy. The one

common feature of these three situations is the presence of gastric juice. But gastric juice will not digest the normal mucous membrane. Only if a small area of mucous membrane has had its vitality so lowered that it can no longer resist digestion does a superficial erosion form, which may develop into an acute ulcer and ultimately into the typical chronic gastric or duodenal ulcer. The vitality is most likely to be lowered by the action of toxins, which are generally of bacterial origin. The two most important sources are the teeth and the appendix. Bacterial toxins produced by chronic periodontitis (pyorrhoea alveolaris) and by root infection may be excreted by the gastric or duodenal mucous membrane after absorption into the blood stream, and may lead to local necrosis, just as the toxins produced by burns may in rare instances damage the duodenal mucous membrane, and those of uraemia may cause ulcerative colitis. In twenty-four hours very large quantities of pus are produced by the ulcerated areas in pyorrhoea alveolaris, and as all of this is swallowed, it can hardly be doubted that it leads to irritation of the gastric and duodenal mucous membrane, especially in the night, when it is no longer diluted by the food, and when the bacteria are no longer destroyed by acid gastric juice. Some organisms are probably absorbed from the mucous membrane, particularly if it has been damaged as a result of any of the other factors which will be mentioned. The minute submucous lymphoid follicles thus become inflamed, and may finally break down and open into the stomach, producing minute erosions, the precursors of definite ulcers. Septic foci in the pharynx and nasal sinuses probably act in the same two ways.

The association of chronic appendicitis with both acute and chronic gastric and duodenal ulcer is too common to be a coincidence, and the greatly diminished tendency to relapse, especially of acute ulcers, following removal of the appendix without interfering with the ulcer, shows that the appendicitis is the primary condition. It probably leads to ulceration in much the same way as the first of the two channels described in connexion with dental infection.

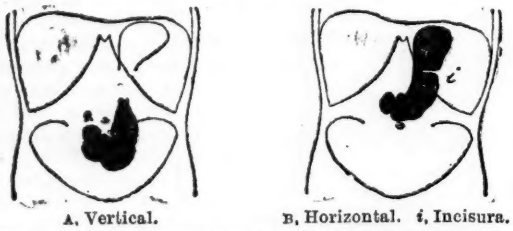
Chemical irritants, such as alcohol, especially when taken on an empty stomach, vinegar, the acids of unripe fruits, and mustard, pepper, and curry, taken in excess, may irritate the mucous membrane to such an extent that it becomes less capable of resisting digestion by the gastric juice. Insufficiently masticated food, and hard indigestible particles, such as pips and skins of fruit, fibres of raw vegetables, such as celery, and nuts have a still greater effect. When the movements of the stomach are watched with the x rays it is seen that the peristaltic waves at the pyloric end are so deep that they divide the extreme distal end of the stomach almost completely from the rest, and as the wave passes on, some of the contents are pushed forcibly through the very narrow pyloric canal, whilst the rest is pushed back into the body of the stomach through the equally narrow channel in the centre of the ring formed by the advancing wave of contraction. The muscular coat of the pyloric end of the stomach thus does the mechanical work which should have been done by the muscles of the jaws and tongue, and the hard particles of food are consequently rubbed against the delicate mucous membrane. It is not surprising that minute erosions develop, which may form the starting point of ulcers; this no doubt explains why ulcers are so much more common in the pyloric end of the stomach than elsewhere.

The occurrence of ulceration is rare in comparison with the frequency of the various exciting causes just described, because it is unlikely for the injured mucous membrane to be digested by the gastric juice unless the stomach has the physiological characteristics already described as predisposing to the production of gastric or duodenal ulcer. The explanation of this is clear. In the gastric ulcer type not only is the acidity high but the emptying of the stomach is slow, so that an exceptionally strong gastric juice remains in contact with the gastric mucous membrane for an exceptionally long period, and the passage of acid chyme through the duodenum is so slow and intermittent that the alkaline duodenal contents are capable of neutralizing it to a great extent. On the other hand, in the duodenal ulcer type the first part of the duodenum is kept constantly filled with exceptionally acid chyme, and neutralization with the alkaline duodenal juice is impossible; even when the stomach is empty gastric juice continues to be secreted, and passes rapidly into the duodenum without being diluted and partially neutralized by admixture with food.

I am convinced that the tendency to develop a duodenal ulcer is increased by excessive smoking; the nicotine apparently acts through the autonomic nervous system, and increases the hypertonus and hypersecretion of the stomach.

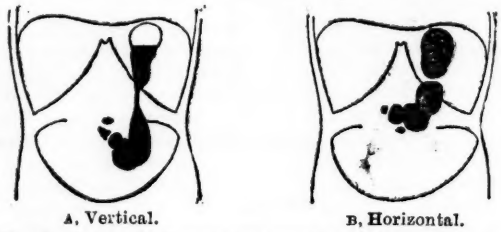
DIAGNOSIS.

We owe most of the accurate knowledge we possess concerning the symptoms of gastric and duodenal ulcer to the pioneer work of a number of surgeons, chief of whom should be mentioned Sir Berkeley Moynihan in England and the Mayo brothers in America. A diagnosis can generally be made from an accurate history of the symptoms, together with the results of an x-ray examination, which gives much information obtainable in no other way. A fractional test meal and the examination of the faeces for occult blood are of some value; direct inspection and palpation of the abdomen rarely give much information.



A, Vertical. B, Horizontal. *i*, Incisura.

FIG. 5.—Spasmodic hour-glass stomach, due to a gastric ulcer.



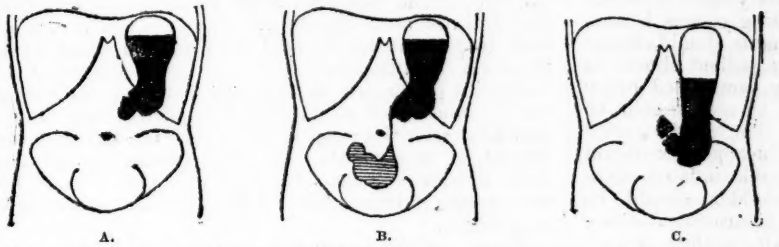
A, Vertical. B, Horizontal.

FIG. 6.—Spasmodic hour-glass stomach, due to a gastric ulcer.

I presume that you are all familiar with the writings of Sir Berkeley Moynihan on the symptoms of gastric and duodenal ulcer. I need only briefly summarize his description, to which I can add little of importance. The symptoms tend to appear in attacks which are generally brought on by an indiscretion in diet, overwork, especially if associated with worry, or exposure to sudden changes of temperature. The attacks are more common and generally more prolonged in winter than in summer. This periodicity is more constantly observed with duodenal than with gastric ulcers.

The one constant symptom is pain. It differs from the pain in all other abdominal disorders in the regularity of its relation to meals. In a given case the pain comes on at a definite interval after a meal of a given size, so that if a patient has pain an hour after dinner one day, he will have pain at exactly the same time every day if his dinner is of approximately the same size. The pain comes on immediately after taking food if the ulcer is close to the cardia; the onset is progressively later as an ulcer approaches the pylorus, and with a pre-pyloric ulcer it generally begins from an hour and a half to two hours after a meal of moderate size. In duodenal ulcer the onset of pain is still later, the usual time being between two and three hours after a meal; it is very characteristic for the pain in duodenal ulcer to be delayed after the last meal so as to wake the patient at 1 or 2 a.m. The pain is always in the epigastrium, and tends to be higher up the nearer the ulcer is to the cardia. In gastric ulcer it may spread towards the left and in duodenal ulcer towards the right, but this is by no means constant. The pain may radiate to the back, especially if the ulcer is on the posterior wall of the stomach and eroding the pancreas. The pain is always relieved by food unless the ulcer is at the cardiac orifice.

The relief is more marked and more prolonged the nearer the ulcer is to the pylorus, and particularly when the ulcer is in the duodenum. The pain is also relieved immediately by alkalis, and there is no doubt that, whatever its actual cause may be, it is associated with the presence of free acid in the stomach, and food acts by diluting and to some slight extent by neutralizing the acid. Localized deep tenderness is almost always present when spontaneous pain is actually felt, but in the intervals it may be completely absent. When the ulcer has penetrated so deeply that local peritonitis is produced, the situation of the tenderness is found with the *x* rays to correspond precisely with that of the ulcer.



A. B. C.

FIG. 7.—Hour-glass stomach, due to cicatrization of a gastric ulcer. A, Half an hour after opaque meal. B, Six hours after opaque meal. C, Three weeks after gastro-gastrostomy by Mr. R. P. Rowlands.

FIG. 8.—Gastric ulcer, producing "niche," N, in hypotonic stomach.

Vomiting is not uncommon in gastric ulcer, but is rare in duodenal ulcer. Its presence in the later stage of either generally indicates that the ulcer is invading the pylorus and producing obstruction, or, in the case of gastric ulcer, that an hour-glass contraction is developing. The pain is at once relieved by vomiting, which removes the acid contents of the stomach.

Haematemesis is far less common than is generally supposed. It is important to exclude such conditions as cirrhosis of the liver and splenic anaemia, which may also give rise to it, but its association with ulcer symptoms clinches the diagnosis. Much more commonly traces of occult blood, which can only be found by chemical means, are present in the stools, but the test is so delicate that this is only of importance if the patient is on a diet which contains no flesh food. The presence of melaena is of the same significance as haematemesis. It should be remembered that if the blood in the stools is bright red it cannot come from a gastric or duodenal ulcer.

In every case in which the possibility of gastric or duodenal ulceration exists an *x*-ray examination should be carried out. A standard opaque meal is given when the stomach is empty, and a second examination should be made six hours later, nothing having been eaten or drunk in the interval. The type of stomach present can at once be recognized, whether it has the average normal orthotonic appearance, or whether it is hypotonic or hypertonic—the types which are likely to be associated with gastric and duodenal ulcer respectively. The activity of peristalsis and the rate at which the contents of the stomach pass into the duodenum are next observed, the slow rate characteristic of a gastric ulcer being in marked contrast with the rapid rate characteristic of a duodenal ulcer.

Although both hypotonic and hypertonic stomachs in healthy individuals without symptoms are invariably empty within six hours, and the latter generally within a couple of hours, some residue is frequently found after six hours when a gastric ulcer and occasionally when a duodenal ulcer is present, even in the absence of organic pyloric obstruction: this is due to the occurrence in the later stages of gastric digestion of pylorospasm, or more frequently to pyloric achalasia—absence of the normal relaxation of the pyloric sphincter when each peristaltic wave reaches it in the later stages of gastric digestion. Some residue after six hours is therefore strong evidence that actual ulceration has occurred in the hypotonic or hypertonic stomach, although the latter has probably existed since childhood or even since birth.

In gastric ulcer spasm of part of the stomach is frequently present. The spasm may be confined to a very narrow segment corresponding with that on which the ulcer is situated; it then gives rise to a characteristic "incisura" (Fig. 5). In other cases a wider area is involved (Fig. 6), and the appearance may suggest the presence of an organic hour-glass constriction, but the upper segment never sags below the neck joining it to the lower one, as is invariably the case in organic hour-glass stomach (Fig. 7).

The same two varieties of gastric spasm sometimes occur in duodenal ulcer, and still more frequently in chronic appendicitis and gall stones. But in these conditions it is only present intermittently, and may come and go during the course of the *x*-ray examination; it disappears when the stomach is gently massaged and on injection of gr. $\frac{1}{100}$ atropine sulphate, whereas the spasm in a case of gastric ulcer is generally unaffected under these conditions.

The *x*-ray signs so far described are present in acute as well as in chronic ulcer. The former is so shallow that no direct evidence of its presence can be expected, but the latter almost invariably gives rise to a highly characteristic picture. In gastric ulcer this consists in the production of a minute diverticulum or "niche," which represents the crater of the ulcer filled with the opaque salt (Fig. 8); in duodenal ulcer there is a more or less definite deformity of the duodenal cap, which is partly caused by the ulcer itself, and partly a result of spasm (Fig. 9). The visualized ulcer is often found to be the seat of considerable tenderness, strictly localized to the area of ulceration, especially in the case of the stomach, as duodenal ulcers are more deeply seated and less accessible to palpation.

A. B. C.

FIG. 9.—Duodenal ulcer. P.C., Pyloric canal. P.S., Pyloric sphincter. D.C., Duodenal cap. C, Crater of ulcer. A, Diagram of normal *x*-ray appearance of pyloric end of stomach. B, Duodenal ulcer, deforming duodenal cap and invading pylorus. (Reproduced from skiagram by Mr. Reitz.) C, Section of pyloric end of stomach and duodenal cap, reconstructed from B, to show extent of ulceration.

The *x* rays also give quite definite evidence of the existence of organic hour-glass contraction (Fig. 7), the appearance of which is quite distinct from that caused by spasm, though the two are often associated together so that the degree of narrowing found at operation may be much less than what the *x* rays would suggest. Dilatation, even with a history of duodenal ulcer, and marked delay in evacuation in spite of abnormally vigorous peristalsis, which may be associated with occasional antiperistaltic waves, prove that pyloric obstruction is present.

PROPHYLAXIS.

I have already referred to a patient with all the symptoms of duodenal ulcer as well as the characteristic hypertonus and rapid evacuation of the stomach in whom nothing abnormal was found at operation. The symptoms had only appeared a few months before, and it is highly probable that a pre-ulcerative condition was present, which would have led to the development of an ulcer if no prophylactic treatment had been undertaken. It is not at

all uncommon to find people suffering from slight symptoms, which have either been present for only a short time, or, if for longer, have been intermittent and have rarely lasted for more than a few days at a time, but which are otherwise quite characteristic of gastric or of duodenal ulcer. In all such cases the type of stomach characteristic of gastric or duodenal ulcer is found, but no deformity of stomach or of duodenal cap, which alone proves conclusively the presence of an actual ulcer, can be seen with the *x* rays; there is no residue of food six hours after the barium meal, and no occult blood is present in the stools.

These patients are, I believe, suffering from a pre-ulcerative condition, which will certainly lead to actual ulceration in time unless all the exciting causes I have already described are removed. The teeth should, therefore, be put into perfect order, and the patient should in the future have his teeth thoroughly overhauled every six months. The pharynx and nasal sinuses should be examined for possible sources of infection, which should be dealt with if any are discovered. The appendix should be removed if there is evidence of chronic inflammation. The stomach, duodenum, and gall bladder should be inspected at the same time, but a gastro-enterostomy should not be performed unless, after all, an ulcer of considerable size in the immediate neighbourhood of the pylorus is found, but this is not likely to occur under the conditions described, especially in the absence of any six-hour food residue.

The patient should be made to realize the danger he runs of an ulcer developing unless he eats slowly and chews his food very thoroughly. He should take nothing which is chemically irritating to the stomach, such as alcohol, vinegar, unripe fruit, mustard, pepper, chutney, pickles, and curry; a little well-diluted whisky is, however, permissible, but only if taken with meals. Very hot and very cold drinks should be sipped, and ices allowed to melt in the mouth before swallowing. Any food which cannot be chewed to a fluid consistence should be avoided; this includes tough meat, new bread, raw vegetables in the form of salads, and indeed all green vegetables unless prepared as purées, pips and skins of fruit, whether raw, cooked, in jam or marmalade, nuts, and especially currants and raisins in cakes and puddings. Smoking should only be permitted in strict moderation.

With the gastric ulcer type of stomach, which empties slowly, three good meals without any intermediate feeds, such as afternoon tea, should be taken. But with the duodenal ulcer type of stomach, which empties itself too rapidly, a tablespoonful of olive oil, which delays the evacuation, should be taken before each of the three chief meals; this has the further effect of diminishing the secretion of gastric juice, as Craven Moore has conclusively proved. Some milk should also be taken about three hours after breakfast, and afternoon tea should be taken at 4.30 or 5 p.m. More milk should be drunk just before going to bed, and a little should always be kept at the bedside to drink if the patient should wake in the night.

Care should be taken to avoid exposure to sudden changes of temperature, and if the patient is accidentally chilled he should as quickly as possible get thoroughly warmed, and, if necessary, have a hot bath and go to bed. It is quite unnecessary for patients of this kind to stay in bed or have a period of stricter dieting than what I have described, but the precautions mentioned should be continued for an indefinite period. The patient should also be given a powder containing equal quantities of oxide of magnesia, calcium carbonate and bismuth carbonate, which he can take whenever he has the least discomfort, in frequently repeated but very small doses—just sufficient to keep himself completely comfortable. He should also be careful to keep his bowels regular by means of paraffin, which has the advantage of being entirely devoid of irritant action, and, if necessary, with oxide of magnesia after each meal, as this has the additional advantage of neutralizing the excessive gastric secretion without irritating the mucous membrane.

MEDICAL TREATMENT.

As a preliminary to the treatment of the actual gastric or duodenal ulcer the teeth should be put into perfect condition, and any infected focus in the nose or throat should be treated. Throughout the treatment the mouth should be kept absolutely clean, and the tongue frequently scraped with a wooden spatula if any fur accumulates on it. If chronic appendicitis is present the appendix should be removed, but a gastro-enterostomy should not be performed unless the ulcer is very large, or is giving rise to mechanical difficulties owing to hour-glass contraction or pyloric obstruction.

The patient should be kept warm in bed throughout the treatment, but he should get up every day to have a bath and to open his bowels, the difficulties with which are greatly reduced if a bed-pan can be avoided.

The object of treatment is to reduce the secretion of gastric juice as much as possible, and to keep the hydrochloric acid in the stomach completely neutralized throughout the day, and, what is almost invariably neglected, throughout the night. The evidence is conclusive that free hydrochloric acid prevents an ulcer healing, whatever additional factors may have contributed towards its production in the first instance. At the same time as much food as possible is required to maintain the patient's nutrition, especially when he has lost much weight, as is often the case with gastric, though rarely with duodenal, ulcer. Finally, the food should be as unirritating in its mechanical and chemical characteristics as possible.

These are the commonly accepted principles of treatment, but several years ago I realized how inadequately it was carried out by the various methods in use both in England and abroad. I tried in various ways to fulfil these principles more satisfactorily, but it was not until I read a paper by Dr. Sippey of Chicago just before the war that I realized how far short of perfection my improved methods still remained. I had the good fortune to meet Dr. Sippey during my recent visit to America, and I have now adopted his method of treatment with certain modifications based on my previous experience.

Five ounces of milk (or preferably milk and cream in equal quantities) are given every hour from 8 a.m. to 8 p.m. inclusive. To each feed gr. x of sodium citrate, which combines with the lime in the milk, and consequently prevents the formation of irritating clots by the rennin of the gastric juice, dissolved in 2 drachms of emulsio magnesiae are added; the latter contains gr. v oxide of magnesia to the drachm. This has the advantage over sodium bicarbonate in having four times its neutralizing power, in giving off no carbon dioxide, which is liable to distend the stomach on reacting with the hydrochloric acid, in having a mild aperient action, and in producing a very much smaller secondary increase in secretion after the initial neutralization than sodium bicarbonate, which Crohn has shown by the fractional test meal to be the most powerful stimulant of gastric juice in existence.

Immediately before alternate feeds, beginning at 7.30 a.m., half an ounce of olive oil is taken. This inhibits the secretion of gastric juice; at the same time it supplies a digestible and absolutely unirritating food of very high nutritive value in a concentrated form. Immediately before the remaining feeds m v tinct. belladonnae, which has a similar inhibiting effect, is given, as oil before each feed sometimes gives rise to nausea and is more than can generally be digested.

Half an hour after every feed, and at 9, 9.30, and 10 p.m. a powder containing gr. x calcium carbonate and gr. xxx bismuth carbonate is taken in a little water. The former has two and a half times, the latter only one-third the neutralizing power of sodium bicarbonate, but neither gives rise to any secondary hypersecretion, and they neutralize the acid so slowly that the carbon dioxide set free is dissolved in the gastric contents as rapidly as it forms. At 6 a.m. half an ounce of bismuth carbonate, shaken up but not suspended in five to ten ounces of water is swallowed, and the patient then lies on his right side, or in such a position that the powder is likely to come in contact with the ulcer. This forms a protective covering to the ulcer, and at the same time neutralizes any acid present, and calls forth a local secretion of protective mucus.

By these means the contents of the stomach are kept neutral or alkaline from 6 a.m to 10 p.m. If the ulcer is in the neighbourhood of the pylorus, and especially if it is giving rise to any obstruction, continuous hypersecretion of gastric juice will occur throughout the night. It is then impossible for the ulcer to heal, and in the past it has been supposed that such cases must be operated upon. But the obstruction is generally due entirely, or in great part, to surrounding oedema and inflammatory swelling

and pylorospasm, and in such cases, if the ulcer can be caused to heal by medical or surgical treatment, any scarring produced is insufficient to give rise to obstruction.

Sippey has shown that by preventing the accumulation of acid in the stomach during the night these ulcers heal, and a cure can be obtained in most cases without resorting to surgery. At 11 p.m. the stomach is completely emptied by Senoran's evacuator; if not more than two ounces of fluid are present on two consecutive nights, this can be discontinued. If half a pint or more is removed at 11 p.m., the stomach should be evacuated again at 1 a.m. At 11 p.m. atropine sulphate is injected subcutaneously in order to inhibit the further secretion of gastric juice; the largest dose which does not produce unpleasant dryness of the mouth should be given, beginning with gr. $\frac{1}{100}$. At the same time the alkaline powder should be given, and if more than two ounces of fluid were evacuated it should be repeated every two hours through the night. In most cases the continued nocturnal secretion is rapidly controlled by this treatment.

If the patient is constipated the dose of magnesia should be increased, and if the bowels are not opened on two consecutive days an enema should be given. If diarrhoea occurs some magnesia should be replaced by an equivalent amount of bismuth carbonate.

The strict treatment just described should be continued until for three weeks the patient has had no spontaneous pain, no trace of tenderness has been present, no occult blood has been found in the stools, not more than two ounces of fluid have been removed on any one evening, and the *x* rays show no evidence of *active* ulceration. The pain and tenderness generally disappear within forty-eight hours; the other signs of healing appear considerably later, the exact time depending upon the size and age of the ulcer and its proximity to the pylorus.

The diet can now be rapidly increased until at the end of a week everything is taken with the exceptions I mentioned in discussing prophylaxis.

Before returning to his ordinary occupation the patient should be given written instructions as to how he is to prevent a recurrence of his ulcer on the lines laid down under prophylaxis. With large and chronic ulcers he should in addition take a small quantity of the alkaline powder as nearly as possible at hourly intervals between meals for at least six months, but in the case of duodenal ulcer a small feed is equally or more efficacious.

Surgical Treatment.

Everyone must agree that the surgical treatment of gastric and duodenal ulcer is a confession of failure. If the prophylaxis I have spoken about could become universal, or even if ulcers were adequately treated at a sufficiently early stage in their development, operations would only be required for such rare emergencies as the perforation of an ulcer which had previously given few if any signs of its presence. It is not as if a gastro-enterostomy was completely without danger, invariably cured an ulcer, and never gave rise to unpleasant after-effects. I can recall three patients who died as a direct result of a gastro-enterostomy, although all the conditions appeared to be most favourable for success. I have seen a small number both of gastric and duodenal ulcers which have not improved as a result of the operation, or have recurred later, and several surgeons have recorded cases in which cancer has developed in the scar of an ulcer several years after the performance of a gastro-enterostomy. A jejunal ulcer is the most serious sequel; I believe it always heals eventually under the complete neutralization régime I have described. More frequently a certain amount of discomfort after meals, often associated with diarrhoea, which is occasionally very severe, follows the operation, sometimes only after several years of freedom from symptoms. It is true that the worst results follow gastro-enterostomy, when it has been performed for indigestion in spite of no ulcer being found at the operation. Excluding these cases, which all agree should never have been operated upon, a gastro-enterostomy is most likely to be successful when an ulcer is producing definite pyloric obstruction; equally good results follow a gastro-gastrostomy for organic hour-glass contraction. Moynihan has become so convinced that a gastro-enterostomy is unsatisfactory for gastric ulcers not causing obstruction that he now performs a partial gastrectomy instead, simple excision of the ulcer being in his opinion insufficient. Although this operation or destruction of the base of the ulcer by a cautery, combined, if the ulcer is very large, with a jejunostomy, may occasionally be indicated, the operation is such a serious one that it should never be resorted to until the most thorough and prolonged medical treatment has failed.

Indications for Operation.

There must thus still be some uncertainty as to the exact indications for operation, but at present I would state them as follows:

1. At the earliest moment after a perforation.
2. For pyloric obstruction without symptoms of active ulceration.
3. For pyloric obstruction with symptoms of active ulceration, if the *x* rays still show well marked stasis after ten days of the complete neutralization treatment.
4. For gastric ulcer causing organic hour-glass contraction.
5. When the symptoms recur after one or more courses of thorough medical treatment followed by adequate after-treatment. The number of such courses which should be tried depends upon such circumstances as the age, social position, occupation, and place of residence of the patient; thus, the older a patient, the better his social position, the less strenuous his occupation and the less important occasional absences from business, and the warmer and more equable the climate, the less urgent is the necessity for operation.
6. If severe haemorrhage occurs more than once, especially in patients past middle age, when it probably comes from a sclerotic vessel which cannot contract. An attempt should then be made to excise the ulcer, or, if this is impossible, to ligature the bleeding point; failing this a series of sutures should be tied round the ulcer so as to cut off as much as possible of its blood supply. Whenever possible it is best to wait until the patient has got over the initial collapse following a severe haemorrhage.
7. When for any reason—such as the persistence of pain or of occult blood in the stools in spite of treatment—it appears possible that a growth is present, the abdomen should be explored, and unless a growth can be excluded with certainty partial gastrectomy should be performed.

After any operation for gastric or duodenal ulcer the patient should follow exactly the same after-treatment as after medical treatment, or various ill results, which I have already mentioned, may ensue.

In conclusion, I think we may look forward with confidence to a time when not only the medical treatment of gastric and duodenal ulcer will have become so efficient that operations will no longer be required for them, but prophylaxis will be brought into play so early and so adequately that actual ulceration will be regarded as a rare condition which should never be allowed to occur.

An Address
ON
SURPRISES IN DIAGNOSIS.

DELIVERED TO THE ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

BY

EDMUND I. SPRIGGS, M.D., F.R.C.P.

THE late Dr. Gee has recently been quoted as having said: "Medicine has three parts: the first is diagnosis; the second is diagnosis; and the third is diagnosis." Which is an allegory. If we look back on the progress of the art of diagnosis we observe that for centuries able minds had given themselves to the study of symptoms and signs, checking their deductions by the later development of the disorder. In the nineteenth century, to which Gee belonged, the study of morbid anatomy became general, with the result that enormous strides were made in the recognition and classification of diseases. No one can say how much more is to be learned by these methods as time goes on, though we must admit that we cannot hope to excel, if indeed to equal, those who have gone before in acuity of observation and reasoning. The introduction of aseptic surgery led to another great advance in the knowledge of disease by allowing the study of morbid anatomy during life. An exploratory operation is often a most valuable means of diagnosis, though all will agree that,

provided time and the condition of the patient allow, it should follow and not precede other investigations.

But in addition to the study of symptoms, aided as it is by a general knowledge of medicine founded upon normal and morbid anatomy and physiology, various scientific methods, belonging to the laboratory rather than the consulting room, have come into use, by which we may get closer to the knowledge of many disorders at an earlier stage. In some cases facts can be recognized which until recently could be learned only on the operating table; in others conditions can be found during life which were not revealed formerly until after death; and in yet others we can get information, for example, of the functional efficiency of the heart, digestive glands, stomach, and intestines, which neither the surgeon nor the morbid anatomist has ever been able to supply.

The progress of discovery of scientific methods such as may be used in the diagnosis of disease has naturally been faster than the growth of facilities for applying those methods to the needs of the general mass of sick folk. The poor in the large teaching hospitals have been the most fortunately placed, especially as regards the use of bacteriological and chemical methods of diagnosis. Medical work outside hospitals has also had the advantage of the services of excellent clinical laboratories in the great centres of population from which accurate reports can be obtained quickly by letter or telegram. Sanatoriums for special diseases have also long existed on the Continent, and a few in this country; and in many of these laboratory investigations were made either in the sanatorium or in its neighbourhood. It has been my lot to work at a private hospital which is, I suppose, as regards its particular character and range, the first of its kind in Europe, in so far as the physicians are able to follow the investigation of their patients—whether chemical, radiological, bacteriological, or protozoological—under one roof, and to control the food, drink, rest, exercise, and general mode of life during the process. Looking back over seven years the chief impression which remains, after the consciousness of errors and shortcomings of all sorts, is the impression of the constant interest which frequent surprises in diagnosis have given; an interest common, indeed, to all medical work, but shared especially, as I hope to be able to show you, by this particular kind of work.

I propose to relate briefly a few such surprises. The examples of unexpected diagnoses taken are, with one exception, not extraordinary. No attempt has been made to select rare complaints or find cases in which the disease has been thought to be in one part of the body and found in another; such outstanding surprises occur to all of us from time to time. My object is rather to illustrate the working of a routine in which clinical and laboratory methods are used together. Seven out of the eight diseases quoted are common or fairly common. The eighth, diagnosed as sprue, is included because of its special interest.

Hypochlorhydria (Achylia).

This complaint may give rise to considerable derangement of health, and is, in my experience, seldom diagnosed from the symptoms.

1358. A middle-aged man complained of three months' discomfort in the upper abdomen and lower chest, coming on after food, relieved by application of heat but not by alkalis. Three years ago a diseased appendix had been removed; the gall bladder, duodenum, and stomach were then looked at and appeared healthy. A further operation was now contemplated. Chemical analysis of the gastric contents showed that the patient was the subject of a persistently poor gastric juice. On *x*-ray examination no evidence of a gross lesion of the stomach or duodenum was obtained. Treatment by dry diet, gastric lavage, acid and pepsin led to disappearance of symptoms.

677. A man, aged 48, after some years of overwork, had for six months felt weight in the epigastrium with regurgitation and loss of appetite. He had consulted distinguished members of our profession, who thought, as, indeed, any physician of experience might think from his story, that he was the subject of hyperacidity and perhaps duodenal ulcer. The analysis of the gastric contents (by Mr. A. J. Leigh, B.Sc.) showed—

	Free HCl.	Total Acidity.	Active Chlorides.
			Per cent.
Test breakfast	Trace	3	0.01
Test lunch	Trace	14	0.01

The digestion of fibrin was very slow; it was improved by the addition of 0.04 per cent. HCl. *X*-ray examination of the alimentary tract showed nothing abnormal except some delay in the ileum. The urine and faeces were normal.

With treatment for hypochlorhydria steady progress was made, and the symptoms disappeared. Six weeks later the active chlorides were 0.03 per cent., a slight improvement. He continued at home the regimen advised, and has remained well. From time to time tests were made, with the following results:

	Free HCl.	Total Acidity.	Active Chlorides.
			Per cent.
Three months later	Present	22	0.08
Nine months later	Present	34	0.13
Fifteen months later	Present	40	0.13
Eighteen months later	Present	46	0.18

showing that the gastric juice gradually regained its strength.

The diagnosis of hypochlorhydria must not be made upon one test meal, or even, unless all elements of doubt can be excluded, upon two results. The accidental factors which are most likely to alter the composition of the gastric contents, especially dilution with mucus or inadvertent taking of alkaline medicine, are factors which lessen the acidity of the material tested. Errors in analysis are also likely to tend the same way.

Amoebic Dysentery.

In the following case the diagnosis, though unsuspected, was made at once from the routine examination of faeces for protozoa.

1218. A patient had suffered from diarrhoea for eight years, during which time he had had the advice of several of our most able physicians and surgeons. He had been treated by vaccines, tuberculin, and rectal injections. The appendix and caecum had been removed. He was sent to Duff House by a surgeon for further observation before another operation was undertaken. The routine examination showed that cysts of *Entamoeba histolytica* were present in numbers. The sigmoidoscope showed superficial ulcers. With *x* rays the colon was seen to have an irregular ragged outline. The diagnosis made was "chronic amoebic dysentery with secondary ulcerative colitis." Under treatment with emetine the cysts disappeared in a month. The colon had suffered much damage during the eight years of illness, and improvement of the general state was slow though definite.

The patient had not lived in the tropics, and that was why the diagnosis of dysentery had not suggested itself to his former advisers, or to us before examination was made.

Sprue.

851. A young middle-aged woman was admitted with a diagnosis of atony of the large bowel, ascribed to autoinfection, and leading to severe attacks of tetany. She had been ill on and off for years and a complete invalid for more than one year. Large motions had been passed since infancy. The average weight of the stools (taken over seven days) in the first weeks of her stay varied from 250 grams (with 83 per cent. of water) to 600 grams a day, the normal weight for a healthy woman of her small build being about 100 grams a day. Ulcers of the mouth and tongue were troublesome. *X*-ray examination revealed nothing abnormal. The faeces were light and semi-liquid; a chemical examination of them, the patient being upon a fixed diet, showed that absorption of fat and protein was deficient. The following table shows the amount of nitrogen, carbohydrate, and fat in the diet and faeces and the proportion absorbed:

	Grams per Day.		Percentage of Dry Faeces.	Percentage Absorbed.
	In Diet.	In Faeces.		
Nitrogen	13	2	4	86
Carbohydrate ...	178	2	5	99
Fat	98	20	47	80

Pancreatic disease was suspected, but the pancreatic ferments, trypsin (in faeces) and diastase (in urine), proved to be present in normal proportion. A diagnosis of sprue was then made, although the patient had only once been in the tropics, and some of her symptoms had been present before she made that journey. Appropriate treatment by a meat diet was instituted. In three months the ulceration of the mouth was gone, and there was no tetany. A steady recovery followed, and faecal analysis six months later showed that assimilation had

become normal, the daily weight of faeces being 97 grams, with 74 per cent. water.

	Grams per Day.		Percentage of Dry Faeces.	Percentage Absorbed.
	In Diet.	In Faeces.		
Nitrogen	18	2	7	90
Carbohydrate ...	237	0.4	1.5	99.8
Fat	131	6	24	95

The average daily weight of stools sank to 90 grams.

Glycosuria.

A gratifying class of case is that in which diabetes is suspected but the glycosuria turns out to be of different type. In these patients there has often been a lesion or operation about the epigastrium, from which, presumably, the pancreas has been affected.

845. A woman over 50 was sent for treatment for glycosuria, but also complained of pain and vomiting. She had had cholecysto-duodenostomy performed for jaundice. The sugar in the urine never exceeded 9 grams a day, with plentiful carbohydrate in the food, and was evidently not the cause of the loss in weight. *X*-ray examination showed that the stomach did not empty itself and that a constriction of the duodenum was present, for which a further operation became necessary. The symptoms had been masked by the daily use of an opium pill.

92. A man approaching 60, suffering from loss of weight and energy, with glycosuria, was found to be also the subject of anaemia and a hypotonic dropped stomach. Tests showed that the quantity of sugar passed was always small, between 1 and 6 grams per day, and bore no reasonable relation to the carbohydrate in the food.

Date.	Sugar (per Day).	Carbohydrate in Food (per Day).
August 7th	3.1 grams	154 grams.
September 6th ...	1.0 gram	13 grams (strict diet).
September 8th ...	6.4 grams	100 grams dextrose and an ordinary diet.
September 9th ...	2.8 ,,	Ordinary diet.

The opinion was given that the glycosuria was not of importance. Six years have passed, during which there has been no restriction of carbohydrate in the food, and the patient remains well.

Such patients have come to us less frequently of late; perhaps because tolerance tests are made more often than they were formerly.

Chronic Appendicitis.

The following case illustrates the value of *x*-ray examination after a barium and buttermilk meal in the diagnosis of chronic appendicitis:

554. A young man had had ill health at intervals since childhood, including pneumonia, pleurisy, intermittent pyrexia, and "colitis." He was thought to be tuberculous. These illnesses had prevented him from remaining at school. He joined the army, but was invalided out. *X* rays showed that the appendix filled in its proximal part and showed vigorous contractions. The shadow beyond was dilated with an irregular cupped or V appearance due to barium reaching round the sides of a faecal mass. This part and the base of the appendix were tender.

At operation two inflamed enlargements of the appendix were found. There was no appearance of tuberculosis in the appendix or surrounding peritoneum. The subsequent progress makes it probable that the pyrexial attacks he had suffered for years were due to chronic appendicitis.

Carcinoma Recti.

582. An elderly man was sent for colitis of fifteen months' duration. The routine microscopic examination of the motions showed the presence of pus and blood. With *x* rays dilated ileal coils were seen and the sigmoid was segmented irregularly. The sigmoidoscope was then used and a growth found 12 cm. from the anus. Surgical aid was sought and a colostomy done, which enabled him to follow his occupation for more than two years.

Mediastinal Growth.

550. An elderly man was sent for treatment for diabetes, his doctor mentioning that he had an irritable cough, which might be due to too much smoking, and had had one or two febrile attacks. On examination some rhonchi were heard at the right base, with diminished breath sounds. Three days later a faint stridor was heard. The *x*-ray screen showed the presence of a mediastinal growth.

Calculus.

936. An elderly man complained of constipation, piles, frequency of micturition and sometimes discomfort or pain. He had passed blood in the water seven years before and had been *x* rayed twice and told there was no stone. *X*-ray examination showed a large stone in the bladder, of which I show you a radiograph on the screen. It was removed with complete relief.

At former *x*-ray examinations the whole urinary tract had been screened but photographs had been taken of the kidney region only.

In considering such surprises in diagnosis as those related, and many others, I became curious to know how often they occurred; and it seemed that it might be of interest to express by figures the assistance given by laboratory methods in the diagnosis of a series of cases. So far, about 1,500 cases have been admitted, but for the present purpose I have confined myself to an analysis of the last 500, and have made a comparison between the preliminary diagnosis and the diagnosis after investigation. In considering this analysis one or two points must be borne in mind:

First, the patients are not average patients, but are selected, many of them not having been sent to Duff House until after they had been suffering for some years. In a good proportion the medical advisers of the patients had taken them for consultation to various physicians and surgeons. We may fairly assume that in most of these cases considerable skill and experience had been brought to bear upon the diagnosis of the condition, so far as that can be made from the symptoms, signs, and history. In many cases also certain investigations, such as *x*-ray examinations, had been made before admission. Nearly two-thirds of the cases (62 per cent.) were abdominal in type.

The second point which I wish to make clear is that in the following series I am not comparing the diagnosis before admission with the diagnosis made after admission. The comparison lies between the first diagnosis made by us upon the history, symptoms, and physical signs, with the valuable help given by the patient's medical adviser or advisers, and the second diagnosis made after such scientific investigation as seemed desirable had been carried out. On admission the patient's history is taken, his symptoms are noted down, and a physical examination made. It is from this information that what I call the preliminary diagnosis is noted. I need hardly say that in most cases it corresponds with the opinion expressed by the patient's medical man in his letter about the case. After investigation the case is reviewed again, and then is made what is called in the following classification the second diagnosis.

The third point is sufficiently obvious. It is that when I speak of the routine examination I do not mean that every patient is subjected to the same routine. The examinations made are those which appear to be directed to the symptoms complained of. The more general ones are chemical and microscopical examination of urine and faeces, including examination for bacteria and protozoa, of gastric contents, and sputum if present, special examination of nose, throat, and rectum, *x*-ray screening of the chest, photographing of the abdomen for opacities, and examination after a barium meal. In cases of deficient absorption, particularly suspected pancreatic disease, a valuable test is the analysis of the total excreta upon a fixed diet for a period of three days.

Sources of Error.

Fourthly, we do not, of course, assume that the second diagnosis is final and comprehensive. Although in most instances the development of the case or an operation showed that it was near to the truth, there was a proportion of errors and inaccuracies, and of these I shall speak in discussing the various classes in which the cases are ranged. There are doubtless also other errors, so far undiscovered or not known to us.

CLASS I.

In the 500 cases, 53 were of diabetes, in which the diagnosis itself offered no difficulty, though the determination of the kind of case and the appropriate treatment calls for prolonged daily dietetic and chemical observations; 2 others were thought to be diabetes but proved to be a different form of glycosuria, and are not included. Of the

53 diabetic cases, in 48 there was no unexpected complication. In 5 others were found: in 2 heart disease, one Bright's disease, one a large abscess in the leg, and one tobacco poisoning.

CLASS II.

In 143 cases the diagnosis made after investigation coincided in all important respects with the first diagnosis made on the history, symptoms, and physical signs. If we add to these 143 the 53 cases in Class I we find that in 196 cases—namely, 39 per cent. of the whole—the preliminary diagnosis, so far as we were able to test it, was correct.

CLASS III.

In another large class the second diagnosis confirmed the first one, but some material and important point was added by the investigation. For example, a case diagnosed as gastric ulcer found to have a severe constriction of the stomach, a case of ulcerative colitis found to have a cancer of the sigmoid, a case of obesity found also to be suffering from malaria, would be put in Class III. In this class there were 96 cases, made up as follows: In 10, in addition to the condition diagnosed, an affection of the appendix was present, confirmed by operation in 5. In 5 others the presence of gall stones was detected. In 5 the diagnosis was corrected as to the position of an ulcer, a supposed duodenal ulcer being found to be gastric or vice versa. The other findings were: Hyperchlorhydria, 8 cases; hypochlorhydria, 5 cases; amoebic dysentery, adhesions of the bowels, 4 cases; constriction of stomach (verified by operation), gastric ulcer, duodenal adhesion, constipation, alcoholism, oversmoking, nervous exhaustion, 3 each. There were also 3 cases in which intestinal stasis had been diagnosed, but in which the delay proved to be rectal only. Cancer of the bowel, cancer of the stomach, anaemia, ulcerative colitis, 2 cases each; diabetes, constriction of the oesophagus, deformity of stomach, constriction of the colon, adhesions about the gall bladder, colitis, sigmoiditis, *fistula in ano*, sprue, renal calculus, pyelitis, bacilluria, paratyphoid carrier, septic tonsils, deficient teeth, pyorrhoea, heart disease, fibroid lung, bronchitis, pleuritic effusion, climacteric, post-influenzal toxaemia, malaria, 1 each. Diverticula of the intestine were also found in several cases, but did not seem to be associated with symptoms.

CLASS IV.

Is really a subclass of Class III. It contains 83 cases admitted with a diagnosis of one of two or more gastro-intestinal lesions—that is to say, the case was regarded as probable appendix, or duodenum; or gastric or duodenal ulcer; or ulcer or gall stones, without specifying which; and it was desired to ascertain, if possible, whether such a lesion were present, and if so where it lay. In 74 of the 83 the diagnosis was justified, evidence of lesion being found. The second diagnosis was as follows: Duodenal ulcer 16 cases (9 operations); chronic appendicitis 30 cases (22 operations); gastric ulcer 7 cases (2 operations); growth of bowel or stomach 5 cases (2 operations); ileal bands or adhesions 4 cases (2 operations); severe constriction of bowel or stomach 3 cases (3 operations); lesion of gall bladder 3 cases; retrocaecal appendix 2 cases (1 operation); deformity of duodenum, cancer of liver, adhesions after operation, and pancreatic disease—1 each. In 9 cases no mechanical lesion was found; 2 were the subjects of hyperchlorhydria, 2 of achylia, and in 5 no disease of importance was discovered.

CLASS V.

Next is a small class of 18 cases of patients seeking relief after gastro-jejunostomy. In 16 of these evidence of some abnormality in the working of the stoma or a lesion in the neighbourhood was found; 6 of these have so far been operated upon again with excellent results; in 2 the stoma was working well and no mechanical abnormality was found.

CLASS VI.

I come now to a class in which the second diagnosis differed materially from the first, having neither been mentioned by the medical adviser of the patient nor diagnosed by ourselves in our preliminary examination of the case. In this class there were 96 patients, and the second diagnoses were as follows: Chronic appendicitis 16 cases (5 operations so far); achylia 9 cases; duodenal ulcer, gastric ulcer, heart disease—4 each. There were also 4 cases in which intestinal stasis had been diagnosed but was not found present. Bronchiectasis, tobacco poisoning, caseous masses in the abdomen, phthisis, renal calculus, mediastinal growth, neurosis—3 each. Uterine myomata, prostatitis, hyperpiesis, hyperchlorhydria, colitis—2 each; amoebic dysentery, fibroid lung, bronchitis, anaemia, constriction of duodenum, growth of the bowel, adhesions of the bowel, growth of the stomach, volvulus, atonic stomach, enteroptosis, pancreatitis, gall stones, cholecystitis, constipation, sprue, uterine retroflexion, lesion in sphenoidal cell—1 each.

It will be noticed that cases have been included in this group—phthisis, bronchitis, fibroid lung—in which the diagnoses may have been made by physical examination. These were patients in whom either a lesion which had not been detected was found during continued observation, or in whom the effects produced had been ascribed to some other cause which was not found to be present.

I have also added to this class 5 cases in which no first diagnosis, except that of a symptom, was made. Two complained of headaches: one was found to have chronic appendicitis, and the headache was relieved by removal of the appendix; the second was found to be suffering from an error of refraction and hyperchlorhydria. A third patient complained of irregular mild indigestion, and was found to be the subject of constipation and hyperchlorhydria. The fourth complained of headaches and constipation, and was taking excess of tobacco; and the fifth complained of palpitation, and was the subject of anaemia and basal bronchitis.

CLASS VII.

In this class are three cases in which no diagnosis was made and the examinations were negative.

CLASS VIII.

The last class consists of 8 cases in which errors in diagnosis were made. In 4 cases the second diagnosis was frankly wrong. In one of them a shadow was diagnosed as a renal calculus, which proved to be a gall stone. A second diagnosed as splenic anaemia proved to be malignant disease. In another the diagnosis was made of a retrocaecal appendix and deformity of the duodenum; the appendix was retrocaecal and diseased, but no lesion of the duodenum was found. In a fourth a diseased appendix was diagnosed and a lesion of the stomach; cancer of the stomach was present, but the appendix was healthy.

In a fifth case the appendix, which lay deeply in the pelvis, filled in part only and was tender, and was thought to be abnormal; at the operation it was reported healthy and the symptoms ascribed to ptosis of the caecum. The case is not, however, conclusive, as no microscopical examination of the appendix was made. We have repeatedly found small lesions of the mucosa causing symptoms of appendicitis which are not detected by external examination of the appendix.

In the remaining three cases, although the diagnosis made was correct so far as it went, something important was missed. In one chronic appendicitis was diagnosed, but gall stones were also present and had not been detected. In another cancer of the stomach was diagnosed successfully, gall stones again being missed. In a third chronic appendicitis was diagnosed and was present, but a tumour of the pancreas had not been detected, although the surgeon's attention was directed by us to that region because an unusual deformity of the duodenum, which we could not explain, was caused by the tumour. I show you the radiograph on the screen.

In palliation of these errors it may be said that in every one of the patients in this class, with the doubtful exception of the fifth case, the operation advised was necessary.

The following table summarizes the figures which have been quoted.

Summary of Statistics.

		No. of Cases.	Per cent.
Class I ...	Diabetes	53	10.6
Class II ...	First diagnosis confirmed	143	28.6
Class III ...	First diagnosis confirmed with addition	96	19.2
Class IV ...	(*a*) First diagnosis confirmed with differentiation	74	14.8
	(*b*) First diagnosis not confirmed	9	1.8
Class V ...	Gastro-jejunostomy	18	3.6
Class VI ...	Second diagnosis differing materially from the first	96	19.2
Class VII ...	No diagnosis	3	0.6
Class VIII...	Errors in second diagnosis	8	1.6
		500	100.0

It has probably occurred to my readers that the various classes into which I have divided the cases run into one another and that the boundary line must often have been indefinite. This was so, and on that account the actual figures must not be taken too seriously. If there has been bias in the process of classifying I have tried to direct it towards the swelling of Class II—cases in which the first diagnosis was confirmed—and Classes III and IV *a*—in which the diagnosis was added to or made more accurate, rather than towards Class VI, in which the diagnosis was altered.

In the following table some of the classes are thrown together to obtain a general view.

General Classification.

		No. of Cases.	Per cent.	
Class I Class II	First diagnosis confirmed	196	39.2—40	
Class III Class IV*a*	First diagnosis confirmed with important addition or differentiation	170	34.0	55
Class VI Class IV *b*	Diagnosis altered after examination	105	21.0	

Therefore, in 40 per cent the diagnosis was confirmed, and in 55 per cent. it was modified or altered.

We may summarize the figures by the statement that out of 500 consecutive cases of varying nature, of which two-thirds were abdominal cases, the first diagnosis made on the history, symptoms and signs was confirmed by appropriate laboratory examinations and tests in 40 per cent. of the cases, was materially added to or modified in 34 per cent., and was altered in 21 per cent.

It appears, therefore, that in over half of the cases a material advance was made in diagnosis by the methods of investigation used.

We must never forget, ladies and gentlemen, that the ultimate unit is the patient and not the case. No objective investigation will ever enable us to do without personal observation. A laboratory report may be the corner-stone of the diagnosis, but it cannot of itself be the diagnosis. For example, a man may harbour the germ of an infective disease or may have a stone in his kidney whilst his ill health is due to another complaint or condition altogether. The doctor must observe and appraise the patient himself, his symptoms, signs, temperament and circumstances, using also all other means that the growth of knowledge has given.

[The address was illustrated by lantern slides.]

CONCLUSIONS.

1. The first need in diagnosis is the careful study of the history, symptoms, signs, and general condition of the individual patient. By such means an accurate diagnosis was made in 40 per cent. of 500 patients.

2. In a large proportion of cases, especially those in which the functions of secretion, nutrition and excretion are affected, or in which infections, calculi or growths are present, the routine use of scientific methods of investigation is an invaluable aid. In over half of the series of 500 cases the preliminary clinical diagnosis was modified or changed after routine investigations had been made.

3. Facilities for such examinations are at present widely needed, especially for folk of moderate means as compared with those who are treated in public hospitals and with the well-to-do.

4. For want of such investigations large numbers of patients are given advice and treatment which is not the best suited to their complaints, hundreds of unnecessary operations are done, and hundreds of operations that ought to be done are left undone.

RESULTS OF THE PEPTONE TREATMENT OF ASTHMA.

WITH A NOTE ON THE TREATMENT IN CERTAIN PATHOLOGICALLY ALLIED CONDITIONS.

BY

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IN previous communications[1] the peptone* treatment of asthma was described in detail, and it may now be profitable to consider the extended results. These are based on a fairly large number of cases, all of which received treatment over a year ago. It was formerly pointed out, *inter alia*, that certain types of cases were amenable to the treatment; that the method of immunizing depended on the type of case; that no reaction appreciable to the patient should follow the injection (intravenous); and that the latter should be made slowly.

The treatment has been instructive in respect of the grouping of asthmatical cases. Two main groups occur which show no tendency to pass into each other. One group comprises such as quickly respond to the treatment, and the effect is more or less lasting, the recurrences being infrequent and milder in character. The other group is resistant, and is subdivisible into such as are totally resistant and those in which, by careful immunization, the disease may be largely overcome.

Group 1.

The first group presents as a rule most of the following characteristics: General good health, little family predisposition, limited duration of the disease (though a variable factor), regularity in recurrence of attacks, freedom from bronchitis and emphysema. This group is illustrated by such cases as the following:

Male, aged 22. Has suffered for four years. Attacks occur regularly every night during winter and spring; less frequent in summer. They last from one to three hours, and some relief is obtained by burning asthma powder. Is quite well in the daytime. After seven injections the attacks began to yield and ceased entirely after the tenth. The patient remained quite free of asthma for about a year, when he returned desirous of having some treatment as a prophylactic for the winter months. There has been no return of the asthma.

The relief, however, is not usually as complete as this. More frequently the history is somewhat as follows:

Female, aged 37. Asthma four and a half years; worse in summer. Is disturbed practically every night by slight attacks, for which she burns the usual powders, but, in addition, about every three weeks she suffers a bad attack which prostrates her one or two days. The response to treatment was very rapid, she soon began to have good nights, and could exert herself without any respiratory discomfort. After eleven injections she remained quite free for five months, when the disease returned in a milder form. Another short course of treatment was given, and during the next year she only had three slight attacks.

Such cases might be multiplied almost indefinitely. The treatment is simple and the results very gratifying. The only trouble encountered is the taking of "colds," to which our population is doomed during the greater part of the year. This is often a most distressing factor, and one can only wait and resume.

Occasionally cases are encountered which, from the

* Although it is the proteose fraction of the peptone of commerce which is the active ingredient, I have retained the term "peptone," as it has not yet been proved that the peptone fraction is without any effect.

history, would seem to belong to the second group, but in reality are of the simpler type. As an instance:

Female, aged 45. Has suffered for eighteen years, the asthma developing after childbirth. At first the attacks occurred about monthly, but then changed to weekly. Worse in summer. Attacks last on an average twelve hours. A short course of treatment brought the attacks to an end, no trace of the disease appearing for many months. During the past year she has only had occasional mild attacks, brought on, as she thinks, by indigestion.

None respond better to the treatment than children. In them I make the injection into the spinal muscles, basing the practice on an observation by Meltzer that the venous arrangements in these muscles are such as to cause the absorption of the medicament to approximate more to an intravenous injection. Witte's peptone must not be used, as it may cause a severe local reaction. Most other varieties, however, are innocuous in this respect. The same dose as that used intravenously for an adult should be given, but in double concentration.

Boy, aged 6. Shortly after birth developed eczema, which lasted for two years. On its disappearance asthma set in. The attacks lasted from a few hours to a week; then about a week's respite. All the year round. The attacks quickly began to yield and ceased after eight injections. He remained perfectly well for three months, when an attack supervened. Seven months elapsed before he had another, then three months, and four months. It has not been necessary as yet to repeat the treatment.

Girl, aged 3½. Attacks since the age of one year, lasting for three days. Then about four weeks free, with perfect health. She received eight injections into the spinal muscles, and now seventeen months have passed without any recurrence.

Boy, aged 13. Asthma for five years. Attacks lasted seven days with two months' interval; all the year round, and also after exercise, such as games. Since treatment two years ago, he has not had a trace of asthma, and can play a strenuous game of football.

Bronchitis complicating asthma in a child is not the bar to treatment which it presents in an adult. None of the children hitherto treated have been refractory.

Group 2.

A few observations may first be made regarding cases which resist the treatment. They include nearly all those with chronic bronchitis and developed emphysema, and cases presenting any degree of cyanosis, even without bronchitis. Also those in whom, apart from the asthmatical paroxysms, a more or less oppressed condition of the respiration is practically never absent. As a rule, the affection has lasted many years, dating from childhood, or from the age of puberty, and a family history of asthma can nearly always be elicited; sometimes hay fever also is found. Often the only effect that can be produced in such cases by means of peptone—and it has very important bearings—is the complete suppression of the attacks for a short period by a mildly toxic dose. For two or three weeks the patient for the first time experiences complete relief and thinks a cure has at last been made, only to be sadly disappointed. The dose of peptone necessary to effect this desensitization must be carefully considered in relation to the individual case, and should produce, in from one to two hours, headache, malaise, shivering, slight rise of temperature, sickness, with pain in the abdomen and diarrhoea. Sometimes a herpetic eruption occurs about the mouth or more widespread.

But this group also includes many cases in which very satisfactory results may be obtained, as follows:

Male, aged 29. Asthma for twenty years, induced without any obvious cause, but also precipitated by what he described as "horse dust." Of rather an asthmatic "habit," breathing slightly laboured, a low degree of emphysema, with a fairly good chest expansion. Bronchitis was occasionally troublesome, and there was considerable expectoration after the attacks. These occurred as a rule nightly, but from time to time he had bouts lasting a few days. After three weeks' treatment there was no definite improvement. The method of immunizing was modified, and the dermal reaction to peptone recorded. In the fifth week a definite improvement set in, and after eight weeks the asthma had ceased; there was no oppression of the chest, and he could easily and freely expand it. A year later he wrote: "During the past year I have not had one bad day or night; only one or two slight attacks owing to weather changes."

Immunization in Certain Cases.

In regard to the immunization in difficult cases there are two if not three necessary considerations: (*a*) The rate of injection of the peptone and its dilution, (*b*) the peptone to be used, and (*c*) the indications afforded by the dermal reactions as the case proceeds. If the patient takes the peptone well larger doses may succeed, given by very slow injection to avoid reaction. If the patient is sensitive to peptone, however, great care is required, as the larger dose given in this way may precipitate an attack of asthma. Rarely this occurs very quickly—in a few minutes—with concomitant flushing of the face, especially if Witte's peptone be used, which seems to contain a toxic ingredient not present in muscle peptone. Again, a mixture of peptones sometimes succeeds best. The dermal reaction (which may be produced by a von Pirquet borer) is not of much value at the beginning, as non-asthmatical subjects may give it, and it varies considerably in different persons, but as immunization proceeds it ought to lessen, and finally disappear—that is, show no distinction from the control made with the solution in which the peptone is dissolved. Experience proves that the immunizing injection should never reach the critical point; it only injures the immunity mechanism. As a general rule also, there ought to be three clear days between each injection. Another case in which the result was very satisfactory may be cited:

Female, aged 23. Had suffered severely since 3 years old. Had tried every known alleged remedy without any benefit. The attacks lasted from four days to a week, with about three weeks' remission. During this time, however, she suffered from constant nocturnal asthma, lasting from 2 a.m. to 7 a.m. Had but little bronchitis and a very moderate degree of emphysema. Improvement did not set in until the fifth week, and from this time onwards the patient had "tightness" in the chest but no definite attack. This sense of tightness or oppression was only induced on exertion. She continued so for three months, when attacks began, but lighter in type. Another course of treatment was given, with the result that only the "tightness" remained as before, and a few months elapsed ere the attacks recommenced. They did not last long, and for months past the patient has been better than ever before.

Reference may finally be made to two cases which closely resembled each other and showed features of considerable interest:

Boy, aged 14. Fairly well grown, but of the asthmatical "habit." The disease had existed "ever since birth." Family history of asthma. Attacks occurred about every ten days, and lasted three to five days, when he had to be propped up in bed. Was well between the attacks. Dieting was without any influence. The attacks were preceded and ushered in with sneezing, headache, sickness with vomiting, diarrhoea, and fainting fits. Treatment revealed that the boy was sensitive to peptone, 10 minims of a 2 per cent. solution of Witte's peptone producing a distinct reaction. It was diluted with beef peptone and carefully regulated. Punctually to time the attack came on, but the next attack, though punctual, only lasted one day. The next, however, did not arrive until the eighteenth day, and was of a light character. Treatment was continued for two months, with an interval of ten days after the first month (this is often advisable in sensitive cases). The attacks had now ceased, and during the next two months he had only two minor attacks. For the last eighteen months occasional but much lighter attacks have occurred, and the boy has gained much in weight and looks ruddy.

The interesting point in the case is that the onset of the attack was accompanied by symptoms identical with those following a mildly toxic dose of peptone, and herein may lie the explanation of the condition of sensitiveness to that substance on the patient's part. Curiously enough, while this boy was under treatment another case, also in a boy, with practically identical history and symptoms was encountered. The attacks also began with headache, shivering, vomiting, etc., and for years he had suffered severely. The result of treatment was excellent, as he has only had two minor attacks in the course of the past year.

In the large number of cases of asthma treated during the past three years the patient's diet has been largely a negligible factor. The diet must, of course, be regulated, but the cutting out of certain articles rarely produces any marked or lasting effect. No doubt there are cases, but they form a small class, in which idiosyncrasy exists in respect to some particular food (which may be entirely carbohydrate). The same applies to asthmas caused by animal or vegetable emanations. Again, the dyspnoeic attacks in bronchitis may be due to the products of bacteria locally. But in the great majority of genuine asthmatics the explanation is rather to be sought in a defect in the hydrolysis or metamorphosis of foreign protein residing in the digestive organs or in the lymph or the body cells. To this protein poison the asthmatic

individual is sensitive, and the bronchial muscles contain the dominant receptors for it.* This sensitiveness may be either hereditary or acquired, and is influenced by climatic and other environmental conditions. This leads one to consider the likelihood of other organs or tissues behaving in a similar manner, and causing recurrent fulminant disorders in which no local gross lesion is discoverable. The fact that in animal experiments the protein poison or a foreign protein selects different organs in relation to the species may be of some significance in this connexion.

The Application of Peptone Therapy to Cases Pathologically Allied to Asthma.

It has just been stated that where sensitiveness to a particular foreign protein exists, it is common to the organism as a whole, though the brunt of the attack seems to fall on a particular part—in the case of asthma, on the smooth muscle of the bronchi. Such a part or organ possesses a positive chemotactic relationship to the antigen, either from some peculiarity in itself or in the antigen. An antigen similar in nature, therefore, to that which provokes asthma in one individual may cause explosive attacks in the stomach or liver or central nervous system or circulatory system, etc., in others. I first put this view to the test some little time ago in a case of migraine:

Female, aged 37. Had had right-sided migraine since the age of puberty. Looked well, and was otherwise in good health. At first the attacks occurred about once a month, but during recent years they recurred regularly once a week. No family history of migraine or asthma. Diet was without any influence. Worse in spring. They began with pain and throbbing in the right side of the head, which gradually got worse, and attained its maximum in twelve hours. Then sickness with vomiting came on and lasted about half an hour, which seemed to bring some relief. The pain then gradually subsided, and in another twelve hours the attack was over. The peptone was administered as for asthma. A day or two after the second injection the attack was due, but did not appear. The patient, however, reacted to the third peptone injection (showing sensitiveness), and this caused a headache which lasted a few hours. The dose was reduced, and the peptone slightly altered. Excellent progress was made, the attacks becoming slight and infrequent, the last report stating that the patient was completely free from headaches.

Of course one swallow does not make a summer, but as a beginning it is encouraging. Treatment is also being tried in cases of severe recurrent gastric and hepatic attacks which prostrate the patient at the time and are succeeded by a variable period of good health, but the time for their discussion is not yet ripe.

Rationale of the Treatment.

It must in the first place be recognized that, though it may be convenient and indeed correct to speak of these cases as "anaphylactic," yet there is no such thing in nature as the anaphylactic shock which we artificially produce. Clinically, "anaphylactic" means sensitive. But when we inquire how the immunization by means of peptone may be supposed to act, the phenomenon of artificial anaphylaxis forms the basis of our conceptions. This phenomenon is brought about by whole protein as the antigen. Proteose, on the other hand, is only feebly antigenic—that is, it has but slight power of sensitizing to itself; it does not form complement binding antibodies, nor does it produce a precipitate with the homologous serum. In view of the importance of the latter point in anaphylaxis, serums from two cases treated with peptone were kindly examined for me at the Lister Institute, but with entirely negative results. As to the power of proteose to desensitize to whole protein, the experimental results are rather conflicting, as many of them were obtained by denatured proteoses, but there is certainly an effect.

In artificial anaphylaxis a shock is produced which in no respect differs from primary peptone shock. This is true not only of the general reaction, but also as regards those local reactions which are characteristic of the species, and extends even to the microscopical changes. Thus, in the guinea-pig the bronchial spasm; in the dog the swollen and highly congested liver; and in the rabbit the block in the cardio pulmonary circulation are equally produced. It was also found by Dale and Laidlaw[2] that the isolated virgin uterus of the guinea-pig, when placed in a bath containing a solution of Witte's peptone, responded by a contraction identical with that given by the sensitized uterus when bathed with the antigen. Hence it looks as though the toxic substance were identical in the two cases, the substance in the case of anaphylaxis being produced by lysis of the antigen by antibody and complement, and in the case of the peptone being more or less openly present.

But the matter is not so simple. Van Slyke and Whipple[3] have demonstrated that when a toxic or subtoxic dose of proteose is introduced into the blood there is a great and rapid increase in autolysis of body protein. The non-protein nitrogen of the blood is increased by 40 per cent., chiefly blood urea nitrogen, though the amino and peptide nitrogens are also increased. The possibility is not excluded that "among the products of induced autolysis there may be toxic proteoses which add their effect to the injected or absorbed proteose." Hisanobu[4] lately confirmed these results, and also obtained precisely similar but rather more intense changes in anaphylaxis. He concludes that the poison in both must be identical. It may be noted that support is given to the view that the poison may be a specialized product of tissue autolysis from the fact that the reaction can be induced by certain non-protein substances which can only be supposed to exert their effects through injury to the protein of the host. Certain inorganic colloids have very remarkable powers. Thus, colloidal silicic acid is capable of taking the place of immune body in the lysis of red blood cells by complement. The toxic body, if produced from the interaction of antigen and body protein, is related to the rapidity of the injection, as a similar amount of antigen slowly injected may be void. At a certain point cell oxidation may be suddenly paralysed and a product result of the type of histamine or muscarine. Some observers have regarded this poison as originating in the liver.

The view that there is a toxic substance common to anaphylaxis and peptone shock does not commend itself to Dale. In his recent Croonian Lecture[5] he inclines to the view that these factors have a similar action because a change in the state of dispersal of the cell colloids is common to both, which, in the case of anaphylaxis, does not call for the intervention of a posion at all. No doubt such an aggregation might be produced in either case, and cause changes in surface action and osmotic pressure, together with a certain amount of depolarization of the cell membrane, but it is scarcely likely that such an excessively minute quantity of native protein would cause the extreme permeability which occurs in the endothelium of the blood capillaries, as in those of the liver in the dog, and other profound effects of the shock. Dale counters this with the statement that the antigen, when applied to the isolated anaphylactic uterus, acts in about ten seconds, and it is difficult, he says to suppo e that this time suffices for the elaboration of a poison. He also finds that the reaction is largely governed by a stereo-chemical relationship of antibody and antigen. But is not the very object of this configuration on the part of the antibody the rupture of the molecule?

Another consideration introduced by Dale is rather puzzling. The instructive fact is recorded that the serum of the immune animal is capable of conferring passive anaphylaxis even better than that of the anaphylactic animal, its efficiency being closely parallel to the intensity of its precipitating quality. It is found in immunity experiments that the anaphylactic antibody fluctuates with the precipitin, and the two may be identical. The resistance of the immune animal Dale considers to be due to abundance of antibody in the blood which uses up the antigen before it can reach the tissue cells, the shock being caused exclusively by the cellular reaction, as it can be produced in the isolated uterus of the immune animal. But it is admitted that the blood of the anaphylactic animal contains no precipitin, and the shock is attributed by Dale to the absence of antibodies from the blood which have migrated to the tissue cells. How, then, it may be asked, is this blood, deprived of antibody (and precipitin), capable of conferring passive anaphylaxis?

Contraction of an isolated muscular organ is only one element in a very extensive picture, and until some more convincing evidence is forthcoming, the anaphylactic shock and peptone shock may be regarded as produced by an identical toxic substance. Immunization by peptone

* This view was put forward by the writer in the JOURNAL in 1903 as "a defect of metabolism the burden of which comes to be thrown on the lungs."

therefore is applicable to cases in which the symptoms may be caused either by whole or split foreign protein. The milder cases of asthma are probably associated with the latter, clinical evidence for which has already been recorded, and one attack affords little or no protection. A good example of the same thing is afforded in the malarial paroxysm. In many of the severe cases of asthma no doubt a larger molecule operates which is antigenic, and is succeeded by a period of desensitization. In either case protein confers on the body fluids a resistance to the induced poison, when used either in small immunizing doses, or in one dose large enough to produce a definite reaction.

Non-specific immunization does not possess the independence of action which is the prerogative of the specific (in the bacteriological sense). Hence the necessity during treatment of a carefully regulated mode of life. This comprises strict moderation in diet, and, above all, abstinence from alcoholic stimulants, the avoidance of chills, the avoidance of any exercise entailing a marked degree of hyperpnoea, and of anything which raises the normal body temperature, as hot baths of any kind. The patient should go to bed early, and ought not to indulge in social or other excitements, or in changes of residence. After the treatment, preventive measures will naturally be thought of in relation to many of the cases. The protein poison has been found to pertain to the acidic portion of the molecule, and its effects are to some extent neutralized by the simultaneous introduction into the body of alkali. A course of mildly alkaline treatment by natural waters or otherwise from time to time may therefore prove of some service as a prophylactic.

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THE MYOCLONIC FORM OF EPIDEMIC ENCEPHALITIS.

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THE systematic and comparative study of many cases of encephalitis in the principal hospital in Milan enables us to state that besides the classical form of lethargic encephalitis, in which lethargy, fever, and ocular paralysis are the cardinal symptoms, other clinical varieties, less frequent and greatly different, are to be recognized. We can sometimes observe cases in which the symptoms are not lethargy, but excitement, delirium, and myoclonic contractions.

The two following cases are of this second or myoclonic type:

CASE I.

A girl, aged 19, entered the hospital on January 21st last. No hereditary antecedents; she had had influenza with bronchopneumonia in October, 1918, and typhoid fever in January, 1919. On January 17th she began to feel great pain in the muscles of the neck and shoulders, and a few days later she had fever and delirium.

The symptoms present were: Slight cyanosis of the face, injection of the ocular conjunctiva, irregular contractions of the hands, and delirium; the temperature was 38.2° C., the pulse 104, and the respirations were 25; arterial blood pressure 145 mm. (Riva-Rocci). No paralysis of the eyes nor of the cranial nerves. Pupil reflexes to light and to accommodation present and well maintained.* Cutaneous and tendon reflexes normal. A lumbar puncture gave the following result: Liquid perfectly clear, at almost normal pressure; albumin just noticeable; Nonne and Boveri's reactions negative; six lymphocytes per cubic millimetre (Cellule de Nageotte). Cultures from the blood and cerebro-spinal fluid gave negative results.

The patient remained in this condition for about ten days. On February 4th there appeared in the flexor muscles of the arm and of the hand and fingers on both sides, but mostly on the right side, short rhythmic contractions at the rate of 66 to 68 per minute. In the right thigh a contraction of the quadriceps was observed, which produced attempts at flexion of the hip. No sensory troubles were present. Two days later, to the above movements were added slight inspiratory contractions of the diaphragm, synchronizing with the contractions of the arm. These movements continued even during sleep. There was no lethargy. The pupillary reflexes to light and to accommodation were always regular and no paralysis of the cranial nerves was demonstrable.

This is still the condition of the patient, who at present has pain in the arms.

CASE II.

A woman, aged 40, entered hospital on February 16th last. No hereditary antecedents; no history of influenza. On January 25th there had been great pain in the left arm and shoulder, passing to the right side and the abdominal wall. Shortly afterwards rapid and rhythmical muscular contractions appeared which convulsed the patient. There was delirium, with slight fever; no lethargy, no affection of ocular motion nor of sight.

On entering the hospital this woman, who was of average physical development and well nourished, presented a curious and striking symptom-complex. The right sterno-cleido-mastoid and trapezius muscles and the diaphragm exhibited rhythmic contractions, forty-eight per minute. She perspired freely, and was agitated and delirious. No paralysis of the ocular and cranial nerves. No symptoms in the lower limbs. All reflexes normal. Lumbar puncture gave clear liquid, with increased pressure; albumin 0.2 per cent. Nonne and Boveri's reactions negative; five elements per cubic millimetre (Cellule de Nageotte); temperature 37.8° to 38° C.

Five days later the contractions of the neck ceased; at the same time strong rhythmic contractions, which never for a moment left the patient, appeared in the abdominal wall. Synchronizing with the abdominal and diaphragmatic convulsions, the right thigh presented rhythmic contractions of the abductor muscles and sometimes of the sartorius. Such is the patient's condition at present. All these muscles are painful, as well as the back and the whole arm.

The striking symptom in these two cases was the presence of myoclonic movements, both rhythmic and partial, as though produced by an electric current.

We can therefore speak of a myoclonic type differing from the lethargic type, for a certain period of the disease at least. Thus, while waiting for etiological enlightenment we should speak of epidemic encephalitis in general, and should divide it into lethargic and myoclonic types according to the different symptoms noted.

This myoclonic form of encephalitis naturally leads us to ask whether we are in the presence of the disease described by Dubini,[1] and called by him "electric chorea." It has not been mentioned since his time (1840–1870). He presented to the seventh meeting of Italian scientists (1846) a memorandum describing a new disease of which he had studied 38 cases in a period of nine years. "It is," Dubini writes, "nearly always a fatal disease," characterized "by muscular contractions occurring at different intervals, but always identical in each case, as if produced by a repeated electric current. These convulsions affect at first a finger or limb (more frequently the right upper limb) or one-half of the face (the right) and in a few days invade the whole of that side of the body." Dubini added that, in addition to these rhythmic movements, convulsive attacks might occur two or three or even more times a day, giving way afterwards to paresis and paralysis. Dubini's description was followed by those of Frua,[2] Morganti,[3] Pignacca,[4] Stefanini,[5] Behrend,[6] and, later, Grocco, 1884.[7]

However accurate were the observations made by these scientists in the middle of the last century, the limited pathological knowledge which then existed did not enable them fully to appreciate their significance; reading to-day all these memoranda, we see described under the name of Dubini's disease a great number of cases which could better be classed as typhoid or malarial fevers, or Jacksonian epilepsies. Apart from this question, it seems to us that Dubini's disease might be connected with the myoclonic form of epidemic encephalitis as we see it at present.

The difference of the symptoms seen in the lethargic and the myoclonic types suggests a different pathological localization of the virus. In the lethargic form the encephalitis is localized particularly in the regions of the cerebral peduncles and the locus niger. It is a question whether in the myoclonic type the centres of infection might not in different degrees and in a transitory manner be localized in the optic thalamus.

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* See P. Boveri, Société de Neurologie de Paris, March 4, 1920. It is there stated that in the lethargic form of encephalitis one of the first and most important signs is the paralysis of pupillary accommodation, while the reflex to light may be maintained.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SPONTANEOUS RUPTURE OF MALARIAL SPLEEN.

An ex-soldier, aged 25, was admitted to King Edward VII Hospital, Windsor, sent in by Dr. Osborn of Windsor. On the morning of admission, while wheeling a wheelbarrow he was attacked by violent pain in the back and in the abdomen on the left side.

On admission the pulse was soft and fluttering, 124, and the respiration rate was 42. The rigidity of the abdomen was extreme above the umbilicus, and the patient laid particular stress on pain in the left shoulder and behind the shoulder blade. He gave a history of malaria contracted in Turkey in 1919 and repeated slight attacks since.

Under an anaesthetic a large spleen could be felt easily, and incision showed the peritoneum full of blood. The large spleen presented in the median incision, and on examination showed on the posterior superior surface a rent some 2½ in. long, which was bleeding freely. Sutures proving useless, the spleen was excised, the operation presenting no difficulty.

Examination of the removed organ showed great enlargement but no sign of "ague cake." On the superior surface were the remains of some fine adhesions, and the remnants of one of these by the edge of the tear in the spleen leads one to suppose that the fixation of the spleen by these adhesions led to the rupture. Fourteen hours after removal the spleen weighed 1 lb. 9 oz., though it had partly dried.

With the exception of two slight malarial attacks the patient made an uninterrupted recovery and left the hospital in excellent health twenty-six days after operation. The blood contained a large quantity of malaria parasites.

In this case time and blood were lost by endeavours to check the haemorrhage instead of at once proceeding to splenectomy. The median incision was found very suitable for removal of the spleen, as the hilum could be reached with ease.

Windsor. J. Skevington, F.R.C.S.

VENTRIFIXATION BEFORE THE MENOPAUSE.

The following case may be worth recording if only as a warning to those surgeons—and there are some—who consider that the operation of ventrifixation can be performed with impunity in all cases of prolapsus uteri, notwithstanding warnings as to its danger of performance in most textbooks.

Mrs. P., aged 26, a unipara, suffered from prolapsus uteri after the birth of her child, aged 4, and was operated on in 1915, ventrifixation and shortening of the round ligaments being performed.

She again became pregnant, and the child was expected to be born in the first fortnight of July, 1918. Throughout this pregnancy she complained of pain and "a lump" in the right side of the abdomen, apparently the fetal head. This gradually rose higher until finally it was in contact with the rib in the region of the gall bladder; during the last two months she remained in bed owing to the discomfort. On July 6th I was sent for to see the patient as she was having labour pains. I was again sent for on July 16th; for some hours she had been having regular pains, apparently those of the first stage of labour. I did not see her again until the following night. The pains had continued, but there had been no vaginal discharge. She was becoming exhausted. I now made a vaginal examination for the first time; no part was presenting and the os could not be felt. The vagina was filled in front by a tense swelling, and it was some time before I realized what had happened—namely, that the uterus had practically turned a somersault, the fundus being down in the pelvis and the os at the gall bladder, with the vagina stretched and elongated into a narrow tube.

She was removed to the Forest Hospital, and in the early hours of the morning I performed Caesarean section, Dr. B. F. Pendred assisting. On opening the abdomen the fundus uteri was found attached, by a strong fibrous band just above the pubis, to the anterior abdominal wall. The os was in the region of the gall bladder; consequently the posterior wall of the uterus was forwards, and through this I had to make my incision. The uterine wall was not more than ⅛ in. thick. A dead female child and placenta were delivered. I was then surprised to find a second child; its head was partly through the os, and so firmly grasped by the ring of Bandl that it took some minutes to deliver. I sutured the walls of the uterus, and the fibrous band having been divided, it contracted and righted itself, so that my sutures then became posterior.

The patient and second child made an uneventful recovery, excepting for a slight rise of temperature for one or two days in the second week, for which I could not account.

Buckhurst Hill. Geo. Norman.

ACUTE OEDEMA OF THE LUNGS.

In connexion with the descriptions of this condition which have recently appeared in the Journal, the following case may be of interest. It is very similar to that reported by Dr. Brown in the issue of March 27th.

A retired farmer, aged 65, the subject of chronic nephritis, with high blood pressure, generally about 200 mm. Hg, had six months ago a small cerebral haemorrhage, from which he recovered well, and, except for some dyspnoea, was in fairly good health. He went to bed as usual on the night of March 22nd, 1920, and awoke at midnight with a sensation of suffocation, and began to expectorate quantities of pink froth. When I saw him he was cyanosed (ashy grey), sitting up in bed, and constantly spitting up this froth. Fine crepitations could be heard all over both lungs; the pulse was rapid and irregular, but the restlessness, which had been very marked at first, had ceased. I gave him morphine sulphate gr. ¼ hypodermically, and made preparations to perform venesection. However, in a short time his colour had improved, the expectoration was less, and in an hour he was asleep. Later in the day he seemed fairly well; except for coarse moist sounds at the bases the lungs were clear, but the pulse remained rapid. He was given a mixture of ammonium carbonate, tincture of digitalis, and trinitrin, and has now practically regained his former state of health, except that his blood pressure is 230 mm. Hg.

Dr. R. A. Young, writing in Latham and English's *System of Treatment*, recommends prompt venesection, followed by injections of strychnine and atropine. In my case the man's general appearance certainly suggested venesection, and I should have performed it if the more easily available remedy had not been successful.

Kenneth Anderson, M.B.Lond., M.R.C.S., L.R.C.P.

Banwell, Somerset.

I have read with interest the various accounts given recently of experiences of acute pulmonary oedema. In twenty years' experience of general practice I have seen two cases.

The first was a tragic occurrence. During my very early years as an assistant in Warwickshire I was asked to see a platelayer who had been working in his garden in the morning apparently in his usual health when a sudden attack of pain in the chest forced him to go to bed. When I saw him about noon he was sitting up in bed spitting up large quantities of white frothy fluid. His temperature was normal, and there was no cardiac or respiratory distress. The chest was amazingly full of râles. I told his wife to apply a poultice, mainly, I am afraid, to give her something to do, and to give me, in my inexperience, something to say. I did tell her that I was not sure what was the matter, and asked her to send for some medicine. I mounted my horse and rode away. After I left the wife busied herself in the kitchen getting materials for the poultice. She then went upstairs and found her husband dead. Apparently he was drowned in his own secretions. This occurred within fifteen minutes of my departure. I happened to see the late Sir Robert Simon that day, and he gave me the diagnosis of acute pulmonary oedema—a condition I had never heard of. He also directed my attention to five recorded cases, four of them rapidly fatal; the fifth recovered because the visiting physician dosed him with heroic doses of tincture of belladonna, of which he fortunately had a supply in his pocket.

My second case occurred in 1918, when I was in charge of the medical division of the 36th Stationary Hospital at Gaza. A man, aged 50, belonging to a garrison battalion of the Northants Regiment, was brought in late one night with symptoms similar to those in the case described above but with much dyspnoea and cyanosis in addition. The orderly officer (Captain Soden, R.A.M.C., T.) did not call me but treated the case with hypodermic injections of atropine, which promptly relieved the urgent symptoms. The lungs cleared up rapidly within two or three days.

Winchcombe. WILLIAM S. SCOTT.

Reports of Societies.

AT a meeting of the Pathological Section of the Liverpool Medical Institution, held on March 18th, with the President, Dr. J. E. GEMMELL, in the chair, Professor ERNEST GLYNN contributed a critical review of so-called "ovarian hypernephromas." He was of the opinion that such tumours were exceedingly rare, if they ever did occur, and gave three reasons for his view: (1) there was only one recorded case of a cortical rest *in* the ovary (1913), and even this was doubtful and unconfirmed by other observers. It was undoubted that such rests were frequently found in the broad ligament. (2) Ovarian hypernephromas were never associated with hirsuties and changes in the sex characters so common in primary neoplasms of the adrenal cortex in women before the menopause. (3) There was little if any difference, clinically and histologically, between ovarian tumours described as "hypernephroma" and as "malignant lutein" formations respectively, yet both these tumours were apparently quite unlike true neoplasms of the adrenal cortex itself. Dr. G. F. R. SMITH read a paper on the urine after anaesthesia, based on a quantitative investigation of acidosis following various types of anaesthesia. He noted the development of acidosis after ethyl chloride and ether as well as chloroform, and discussed predisposing causes. He was of the opinion that warmed ether given by the open method to a patient not unduly starved before operation was the safest anaesthetic available.

Rebiews.

ANTE-NATAL AND POST-NATAL PHYSIOLOGY.

DR. FELDMAN'S book, *The Principles of Ante-natal and Post-natal Child Physiology, Pure and Applied*,[1] marks a distinct step forwards in our knowledge of young life in its intimate and essentially most important characters. It does more than this, but it does this in the first place. With this book in hand we start afresh and from a new vantage point in our understanding of the physiology of the most obscure part of child life (the ante-natal) and of the most dangerous to health (the neonatal); and it will not be Dr. Feldman's fault if the clinicians and the hygienists do not pass onward to new triumphs of preventive and curative medicine founded thereupon. It may be possible with great labour to find much of the content of the book in monographs and periodicals scattered through the literature of all countries, and in that sense novelty may be lacking; yet it is a strikingly novel work, by reason of the fresh facts and conclusions revealed by the simple bringing together of the many data in it. It has the resultant novelty of a wider and a newer outlook, which is also more penetrating in its intensity.

It is admirable in its arrangement. After a general introductory chapter which has for its heading Samuel Butler's paradoxical truth, "birth . . . is commonly considered as the point at which we begin to live; more truly it is the point at which we leave off knowing how to live," Dr. Feldman divides his subject matter into three parts—ante-natal physiology, natal, and post-natal—and subdivides the first of these into ante-conceptional, conceptional, and post-conceptional or intra-uterine, with a further subdivision of the post-conceptional into germinal, embryonic and fetal. The life after birth is dealt with under the four headings of neonatal, infancy, childhood, and puberty. The continuity of the life which begins in the germ cells is thus traced onward up to the time when it in its turn is ready to initiate a new life at puberty. At each stage in this process the characters of the vitality differ, in the earliest stages most startlingly, and Dr. Feldman succeeds well in tracing the physiology of each, so that in his chapters fertilization, Mendelism, heredity, development, pre-natal metabolism, neonatal rearrangement of function, child life all fall into their proper places and serve to explain each other. To the physiologist as well as to the pediatric physician there will not be a chapter which does not supply some new seed-thought from which others will spring. One of the most striking features of the book is the evidence it affords upon almost every page of the modern tendency of physiology to become increasingly mathematical, and perhaps on that account more exact; not only is this seen in such a chapter as that on the biodynamics of growth (where it was to be expected) and in those on the mechanics of development and of the child's body, but also in those dealing with the circulation and the nervous system both before and after birth. The physiology of the prematurely born—a subject of immense importance from the point of view of life-saving—is treated at the end in a special chapter; but we miss an adequate consideration of the companion and yet widely different problem of the infant post-maturely born. There are, of course, many blanks in our knowledge of the physiology of all these periods of life, and more especially in the ante-natal, and these are necessarily reflected in this work: but they are not faults in the author; indeed, but for him we should not be able to put our finger upon them, and his book will do much to stimulate others to undertake the task of expanding our scientific acquaintance so as to fill up all such lacunae.

There are some 700 pages in the work, and on almost every one of them will be found a thought-stimulating statement. There are numerous plates, including some photographs of well-known workers in this most modern field of research; there are 129 illustrations, and there are crowds of tables and schemes. There are two excellent indexes. The language is always clear and terse, if at times a little inclined to the bare condensation of the textbook which aims at curtailment of space; now and then the greatness of his subject grips the author and shows itself in a sort of restrained enthusiasm, restrained as befits a scientific work and yet enthusiastic because here one is dealing with the very springs of life and is feeling after measures of preventive medicine with almost unthought-of beneficent possibilities. Dr. Feldman has not only written a good book: he has accomplished the yet more valuable achievement of putting forth a work which will stimulate physiologists, obstetricians, and pediatric physicians everywhere, and which will give origin to many other books, small and large. His own book will be often quoted, and it will be many a time utilized without being quoted, as all really stimulating and progress-making books are. The science of child welfare, ante-natal and post-natal, is making great strides in these days, both in its scientific and in its practical aspects, and it has found an invaluable ally in the present work.

[1] *The Principles of Ante-natal and Post-natal Child Physiology, Pure and Applied.* By W. M. Feldman, M.B., B.S.Lond. Longmans, Green, and Co., London, New York, etc. 1920. (Demy 8vo, pp. 721; 6 plates; 129 figures. 30s. net.)

MINERS' NYSTAGMUS.

DR. STASSEN of Liége, in his book on fatigue of the visual apparatus in miners,[2] has written a very useful little monograph on miners' nystagmus. This disease, as is well known, has only recently attracted the attention it deserves. The coal miners of the past, although daily running the risk of explosion, do not seem to have suffered from nystagmus. By 1860, however, the use of the safety lamp had extended, and the results of diminished illumination began to be observed. Stassen traces his subject from the pit-head, where the miner enters the cage with his eyes adapted to "cone" vision in bright light and with his aural apparatus adapted to atmospheric pressure, to the bottom of the shaft and the coal face, where his eyes have now to be adapted to "rod" vision in a dim light and his labyrinth subjected to a higher pressure. The author has

[2] *La fatigue de l'appareil visuel chez les ouvriers mineurs.* By Dr. M. Stassen. Liége: H. Vaillant-Carmanne. 1914–1919. (Demy 8vo, pp. 233; 20 figures.)

examined also the conditions obtaining in iron and zinc mines, where nystagmus among the workers, though not unknown, appears to be much less common than among those who work in coal mines.

A full account is given of the various sources of illumination employed and of the different lamps in use. Numerous illustrative cases and statistical tables add greatly to the value of the book. Stassen considers that deficient illumination and strained position at work are the main causes of nystagmus, and, in agreement with most of the authorities in this country, considers that the former plays the more important part.

The last two chapters in the book deal with the law of accidents occurring in cases of nystagmus while at work, and also with the prevention and treatment of the disease. A good bibliography accompanies the monograph, but it is disfigured by faulty spelling of the names of English writers.

DIPHTHERIA, MEASLES, AND SCARLATINA.

DIPHTHERIA, measles, and scarlet fever are important causes of death, especially in the young; thus, in the year 1919 there were just over 500,000 deaths in England and Wales, and nearly 9,500 of them were due to one or other of these three specific fevers. An excellent account of their symptoms, diagnosis, prognosis, and treatment is given by Dr. F. V. G. SCHOLES in his *Lectures to Students on Diphtheria, Measles, Scarlatina*.[3] The author is Medical Superintendent of the Fairfield Hospital at Melbourne, and writes with the authority of what is clearly a very large experience of these diseases.

Half the book is taken up with the consideration of diphtheria; Dr. Scholes is very firm and precise in his instructions as to the early and adequate use of antitoxic serum in these cases, and brings out many interesting points as regards prognosis and treatment in the analysis of the 19,000 cases he has dealt with. It would be interesting to know what line of treatment he would adopt in the case of the inveterate and incurable carriers of virulent diphtheria bacilli sometimes met with, that resist all ordinary forms of local disinfection and treatment; fortunately they are very rare. In his chapters on measles he notes the rarity with which second attacks of the disease actually occur—something over a hundred seem to have been reported—and contrasts it with the frequency with which patients give a history of two or more attacks; such histories he rejects, and adds that he has himself seen but one "possible case" of recurrence. Describing scarlatina, he gives an interesting discussion on its incubation period—which seems to be from two to seven days in one group of cases, from eight to twelve days in another—and on surgical scarlet fever: the difficulty lies in the existence of numerous atypical cases of the disease, in which fever or sore throat or the characteristic eruption may fail to appear.

The book is full of facts, clearly written, and well arranged; the treatments advised are fully described and practical hints abound. We recommend the volume very warmly to senior medical students engaged in doing their course of instruction in "fevers," and to medical men, who will find in it a thoroughly practical discussion of an important subject.

CHLORINATION OF WATER.

THE *Chlorination of Water*,[4] by Dr. JOSEPH RACE, is a most excellent and painstaking account of the whole subject in its various aspects, handled in a manner which denotes first-hand knowledge of facts. The book is dedicated to Sir Alexander Houston, whose great services in the purification of drinking water are so well known. After a few preliminary historical notes, the author considers the *modus operandi* of chlorine and hypochlorites, discusses the bacteriological aspect of chlorination, and explains the quantity of "bleach" required, its admixture and accurate estimation. The fifth chapter is founded on the author's extensive experience in dealing with complaints received from persons using chlorinated water. While laying stress on the importance of giving very careful attention to such complaints, he makes the observation, with which others having experience in the matter will agree, that auto-suggestion has frequently much to do with the objections made. He takes as an example the causation of colic; in the amounts of chlorine used for purifying a drinking water, a person would have to drink 140 gallons of chlorinated water in order to obtain the very ordinary medicinal dose of one grain. During the war, on several occasions, such complaints were heard in France when in point of fact the water had not been chlorinated at all; in many of these cases the complaints were lodged by members of the medical profession. The advantages and disadvantages of various plants are discussed, as are also economic considerations. The work ends with a clear summary of results. There is an appendix and a good bibliography. Mr. Race is to be most heartily congratulated on the production of a book which will be a standard work on the subject of chlorination of water; it will undoubtedly interest and quite conceivably instruct all those authorities in whose hands lies the control of drinking water.

INDIGESTION.

THE fourth edition of the late Dr. HERSCHELL'S *Textbook of Indigestion*,[5] revised and rewritten by Dr. ABRAHAMS, has been extensively remodelled by its editor. Though containing chapters on organic disease of the stomach, a subject excluded from previous editions, the book is notably smaller than its predecessor; Dr. Abrahams employs an economy of words and repetitions for which his readers will be grateful to him. The first two chapters deal with normal digestion and the general nature and causation of indigestion; the next seven are given to the various methods of investigation to be employed in cases of indigestion, and the author is to be congratulated upon the sound judgement with which he assesses their relative values and trustworthiness. The remaining ten chapters are devoted to acute and chronic gastritis, gastric and duodenal ulcer, malignant disease and dilatation of the stomach, pancreatic and reflex indigestion, the association of indigestion with organic affections other than gastric, and nervous indigestion.

An appendix of fifty pages, mainly the work of the late Dr. Herschell, deals with the cooking of food for patients with indigestion. Dr. Abrahams has produced an excellent book full of practical advice and common sense, which should enjoy wide popularity.

NARCOTIC ADDICTION.

PROFESSOR BISHOP'S little book on *The Narcotic Drug Problem*[6] gives a highly sympathetic account of the subject, a picture of the light in which sufferers from the drug habit would wish their proclivity to be regarded. The condemnatory terms "drug habit" and "drug fiend" Professor Bishop would replace by the non-committal names "drug addiction," "narcotic addiction," "drug disease," and "drug addict"; he believes that neurotic tendencies, weakness of will, perverted appetite, and the like are of no importance in the production of the average drug "addict." The majority of them, he says, acquired their narcotic addiction accidentally or innocently, and "had no voice nor conscious part in the early administration of opiate, realizing no desire or need for it by name, but only wishing for the unknown medicine which relieved their sufferings." In an appendix Professor Bishop quotes a practising physician who says that "there are estimated to be as many as 500,000 or more addiction cases in the State of New York alone." It is not easy to realize the circumstances in which the majority of so large a number of people could come to be taking opiate drugs by accident or in innocence.

Professor Bishop would treat drug "addicts" by reducing the opiate gradually to the minimum found by experience

[3] *Lectures to Students on Diphtheria, Measles, Scarlatina.* By Frank V. G. Scholes, M.D., B.S.Melb., D.P.H.Camb., Medical Superintendent, Infectious Diseases Hospital, Fairfield, Melbourne. Melbourne: Modern Printing Company Pty., Ltd. 1920. (Demy 8vo, pp. 236.)

[4] *Chlorination of Water.* By Joseph Race, F.I.C., City Bacteriologist and Chemist, Ottawa. London: Chapman and Hall, Ltd. New York: John Wiley and Sons, Inc. 1918. (Demy 8vo, pp. viii + 158; 12 figures, 16 diagrams. 7s. net.)

[5] *Dr. G. Herschell's Textbook of Indigestion.* Revised and rewritten by Adolphe Abrahams, O.B.E., M.D.Camb., M.R.C.P.Lond. Fourth edition. London: Edward Arnold. 1920. (Demy 8vo, pp. 228; 8 plates. 10s. 6d. net.)

[6] *The Narcotic Drug Problem.* By Ernest S. Bishop, M.D., F.A.C.P., Clinical Professor of Medicine, New York Polyclinical Medical School, etc. New York: The Macmillan Company. 1920. (Cr. 8vo, pp. 165, 8s. net.)

necessary in each individual case; he disapproves of the treatment by sudden withdrawal and the substitution of other drugs, such as belladonna, hyoscyamus, and pilocarpine, for the opiate. Many "addicts" can be cured completely; in others the disease can be arrested, and the patient will continue to take the minimum daily quantum of opiate, in doses at intervals as wide apart as possible. The co-operation of the patient, it is said, is rarely withheld if he is treated rationally by his medical attendant. The book gives a gloomy view of the present outlook of the rational drug "addict" in New York, where the strict laws regulating the use and abuse of opiates make no allowance for his needs and existence.

AUSTRIAN MEDICINE.

A CAREFUL effort to rehabilitate Austrian medical science and the ancient school of medicine at Vienna lies before us in the form of the first number of a new periodical, the *Wiener Archiv für Innere Medizin*,[7] dated March 1st, 1920. Under the editorship of Professors FALTA and WENCKEBACH, two painstaking, honest, ingenious, and speculative medical men, this periodical bears on its cover the names of the most eminent professors of medicine and its allied subjects in Austria; its contents are to deal with the clinical and experimental sides of the whole subject of internal medicine. The first number contains six papers; the first of these, by Professor Wenckebach, is on pathological forms of the thorax and of respiration, and all six are on subjects of clinical importance. One could wish that the editors had thought fit to make all their contributors summarize their conclusions or deductions under a few numbered headings at the end of their articles. This practice has the double virtue of compelling the long-winded to be at any rate in part concise, and of enabling he reader to extract with speed the few needles of valuable fact that so often lie hidden in the haystacks of verbiage to which those who write for archives, particularly archives in the German tongue, are so notoriously prone.

NOTES ON BOOKS.

DR. SOUTHARD presents *Shell-shock and other Neuropsychiatric Problems*[8] to physicians and experts in mental disease, in the form of nearly six hundred case histories drawn from the vast literature of the subject. At the end of the volume is a briskly written summary or epicrisis, in which the use of the term "shell-shock" is defended; the various types of shell-shock cases are noticed, and diagnosis and treatment are briefly discussed. Over two thousand references to the literature are appended to the volume. An interesting feature of the book is Dr. Southard's use of the first two hundred cases to illustrate defects or pathological conditions which furnish weak spots for the development of "psychopathia martialis" when the sufferer is exposed to a strain too great for his individual endurance or *moral*.

Mr. STANLEY UNWIN'S little book on *The Work of V.A.D. London 1 during the War*[9] gives a clear and admirably written account of the doings of this detachment, contributed by half a score of authors who were the officers most closely identified with the work described in its eleven chapters. Varied the duties of the detachment certainly were. They included such things as attendance at Buckingham Palace, transport of the wounded, air-raid duties, entertaining the wounded, and many other less well defined businesses. The work of the Voluntary Aid Detachments during the war has not hitherto received due notice, commendation, or reward, largely, no doubt, for want of proper knowledge of their performances. We commend Mr. Unwin's volume to all our readers, and trust it may be successful in drawing attention to the merits of a most hard-working branch of Red Cross activities.

[7] *Wiener Archiv für Innere Medizin.* Under the editorship of Professors W. Falta and K. F. Wenckebach. Berlin and Vienna: Urban and Schwarzenberg. 1920. (Sup. roy. 8vo, pp. 210; 25 figures; 11 plates. M.54.)

[8] *Shell-shock and other Neuropsychiatric Problems.* Presented in Five Hundred and Eighty-nine Case Histories. From the War Literature, 1914–1918. By E. E. Southard, M.D., Sc.D., Director (1917–1918) U.S. Army Neuropsychiatric Training School (Boston Unit) Boston: W. M. Leonard; London: Stanley Phillips. 1919. (Med. 8vo, pp. xxxvi + 982. 60s. net.)

[9] *The Work of V.A.D. London 1 during the War.* Edited by Stanley Unwin. London: G. Allen and Unwin, Ltd. 1920. (Cr. 8vo, pp. 96; illustrated. 5s. net.)

TAXATION OF MOTOR CARS.

THE NEW TAXATION.

BY H. MASSAC BUIST.

THE Government's new scheme for the taxation of motor vehicles follows the suggestions of the Departmental Committee on the taxation and regulation of motor vehicles in Great Britain and Ireland in the Interim Report, details of which are published at page 575. Those concerned with the use of privately owned passenger vehicles regret that, beyond recognizing the desirability of a single tax on the motor movement as has been urged in these columns at intervals for years past, there is no evidence in the scheme of recommendations that any progress is to be made towards adopting a suitable basis of taxation. While motorists in the aggregate are sufficiently broad minded to recognize that the fuel situation is too complex for the revenue to be raised by taxing motor spirits of every sort; nevertheless, they did not expect that the only alternative would be what is in effect an aggravation of past errors by retaining the Treasury R.A.C. engine rating, and employing it as the sole means of arriving at a single tax; yet, where motor bicycles are concerned, the method of tax is precisely that proposed for motor vehicles, and advocated in these columns for privately owned passenger cars, namely, weight. Moreover, as showing the unfairness of the proposed law, it may be pointed out that a firm might design and build a motor bicycle of any size and power not weighing more than 7 cwt., so that, in effect, it might be rigged up as a Rolls-Royce limousine, yet the maximum tax in respect of the use and ownership of it would be £3 a year. That point is the basis of a very amusing illustration in *The Motor*.

Theoretically and Practically Undesirable.

The two bodies concerned with the interests of passenger motor vehicle owners are the Royal Automobile Club and the Automobile Association. The representatives of the former body are, in effect, silenced on the point of tactics, because the Treasury rating is practically based on the R.A.C. formula; but the A.A's representative, Major Stenson Cooke, is responsible for the minority report noted below. The Automobile Association itself is strongly opposing the proposals of the Taxation Committee, and has started a vigorous parliamentary campaign on what are, however, lines doomed to failure, and deservedly so, because they are based on the mere iteration of the point that motor spirit is the fairest basis of taxation. While the bodies which profess to represent the views of motor users reveal such an absence of mental grasp it is not to be expected that this or any other Government will do that which is best in the interests of passenger car users.

The seriousness of the situation is that this obstinate adherence to an attitude that has been proved impossible leads to the institution of a single tax on another wrong basis, namely, by Treasury horse-power engine rating, which for perhaps half a generation is likely to determine design in favour, for example, of a relatively long-stroke and, in any case, high-speed engine. If the argument is that there is no positive committal on the part of the Government to an indefinite continuance of the proposed scheme of taxation of privately owned passenger motor vehicles, then we find only that injury of another sort is being done, for designers and manufacturers will have to live from year to year in apprehension of yet another change in taxation schemes, and owners will never know to what they are committing themselves when they buy any given type of car.

Making Confusion Worse Confounded.

Of course, what we want in taxation, as in individual and collective activities, is a fixed basis for reconstruction and an end of all disturbances and doubts. But obviously, before we fix our basis, we should make sure that it is satisfactory. For example, while the proposed quarterly licence scheme as a concession towards recognizing the amount of road use a motorist shall enjoy for his tax is a step in the right direction, there is bound to be ill feeling on the part of numerous owners of Ford cars about the country when they find that they have to pay £21 a year where the owner of a post-war Rover, for example, has to

pay £13 a year. Yet we cannot expect the engine-rating scheme to be reversed to favour the Ford car against the bulk of the English cars which have been designed for years past under the influence of the Treasury horse-power rating scheme.

Far from being proportionate to road wear and tear, the proposed tax is based on the principle that the more you motor the lighter the tax and the less you motor the heavier. For example, the theory is that a Ford owner driving 10,000 miles a year would really be economizing £4 14s. 10d. under the proposed scheme because the existing horse-power and petrol tax on that mileage would work out at £22 19s. 4d. On the other hand, if the mileage were 7,500, the new tax would represent an extra expenditure of 2s. 4d.; if it were 5,000 miles, he would be £4 19s. 7d. out of pocket; while if he motored 2,500 miles a year only, he would have to pay £9 16s. 10d. more than his present horse-power and petrol taxes combined.

Doubtless the proposal to abolish the rebates hitherto granted to medical men is based on the assumption that as their cars are used for their work they get the advantage of having an annual mileage of round about 10,000 as distinct from the 5,000 mark, which would mean that with petrol rebates currently in force they would be saving about £12 a year on a Ford car on a 10,000 miles basis, for it should be noted that the official figures of the Ministry of Transport omit the rebates granted to medical men. In one sense, too, the withdrawal of the tax from the fuel is a greater boon to the medical man than to the average motorist, because the very nature of a doctor's work necessitates his undertaking the maximum amount of acceleration, as in constantly starting on a series of relatively short runs, so that he uses proportionately more fuel.

The curious thing is that the committee on whose report the Government is acting states that it considered various other suggested bases of taxation, and that the only one which showed any prospect of providing a possible solution was a tax on tyres. Yet for purposes of taxation it classifies motor bicycles and commercial motor vehicles in relation to weight. Why is unladen weight impracticable for privately owned passenger vehicles while it is practicable for motor cycles and commercial motor vehicles? No light is thrown on this.

The scale of horse-power basis of rating private cars is now much more finely graduated than the present Treasury rating in force, and a refund is allowed in respect of the ownership of old engines, which means incidentally that Ford cars of pre-war production should be in more demand than the post-war series. Fortunately the new scheme is not to come into force in any case until the end of the year. Whatever the fate of that part of the Budget proposals which concerns the basis of taxation on passenger cars, it is certain that all motorists will have to carry yet another "gadget" on their motor vehicles, for the new style licence will have to be displayed on them. The report says that this must be done "in a conspicuous place where it [the licence] can be seen by any passenger or when the vehicle is stationary by any police or taxation officer, and to be protected against damage by rain or other causes." How it is expected, as the report hints, that this scheme will probably check the stealing of cars is at present a mystery.

RECOMMENDATIONS OF THE DEPARTMENTAL COMMITTEE.

THE interim report of the Departmental Committee on Taxation and Regulation of Road Vehicles in Great Britain and Ireland,[1] referred to above by Mr. Massac Buist, was issued on April 16th, two working days before the Budget. The problem the Committee was set to solve was how might best be raised an annual revenue estimated at £7,000,000, which, after payment of the contemplated contributions by the central Government towards the maintenance of the first and second class roads, would still leave in the hands of the Ministry of Transport a sufficient sum to enable a substantial measure of new road construction and road improvement to be undertaken forthwith.

Under the proposals of the Committee the whole of the increased contributions towards roads will be borne by the owners of mechanically propelled vehicles. It is not much consolation to be told that the Committee regards this as a temporary arrangement due to the immediate necessity to provide moneys for roads and to the existing financial conditions. It holds that at the earliest opportunity the Exchequer should provide out of general funds a fair proportion of the highway expenses.

The Committee by a majority advises the abolition of the motor spirit duty because the system of rebates occasions difficulty of collection, because it fails to cover all the liquid fuels used for mechanical traction, and because it applies to imported fuel only. The petrol companies have given an assurance that if the duty of 6d. be taken off they will immediately reduce the price to the public by 7d., the additional 1d. representing a saving to the suppliers in respect of administration expenses. The Committee points out that the price of petrol to-day is governed by the fact that the demand has outrun the supply and that the market is a closed one, in which there is no effective competition. The Committee is thus in disagreement with the Central Committee on Motor Fuel under the Profiteering Act, 1919, which expressed the view that so long as any special taxation is thought necessary in the case of motor cars, a tax on motor fuel would be more equitable than a tax on cars. The Committee received applications from clergymen, road surveyors, commercial travellers, and relieving officers, asking that they should be granted rebates similar in character to those granted to medical practitioners and veterinary surgeons. The Committee, however, decided to recommend the abandonment of the principle of rebate in respect of any classes of car, commercial or other. The Committee has, however, made two exceptions. The first is in the case of private cars the engines of which were constructed prior to 1913, for which they recommend an allowance of 25 per cent., because the rating of this engine is considerably higher than of a modern car developing the same horse-power. The concession is considered expedient in order not to hamper the continued use of cars of obsolete type at a time when the supply of new cars is not equal to the demand. The other exception will apply to power alcohol, to home produced benzol and to shale motor spirit. The Committee advises that in the event of any duty or excise being charged on such fuel, or mixtures containing such fuel, the duty or excise shall be recoverable by any consumer who has paid a statutory vehicle duty.

The Committee recommends that all licences should expire on fixed dates—yearly licences on December 31st, and quarterly licences on the last day of March, June, September or December. It is recommended that the new rates should come into force on January 1st, 1921. The following are the rates for motor cycles, motor vehicles for invalids, and private vehicles; the rates for commercial goods vehicles are added for comparison.

	£	s.	d.
Motor cycles (including motor scooters and other motor-assisted cycles)—			
Weight not exceeding 200 lb. unladen ...	1	10	0
Weight exceeding 200 lb.	3	0	0
With trailer or side car, and other motor three-wheelers	4	0	0
Motor vehicles for invalids electrically or mechanically propelled, bath chairs or other vehicles for invalids, not exceeding 5 cwt. in weight, inclusive of any batteries	0	5	0
Private motor cars, including three-wheelers weighing 7 cwt. or over unladen: £1 per unit h.p. with minimum of	6	0	0
Electrically propelled private cars to pay only the minimum rate of	6	0	0
Owners of private motor cars the engine of which was constructed prior to January 1st, 1913, are entitled to a rebate of 25 per cent. of the duty.			

Quarterly licences on private motor cars to be issued on payment of 20 per cent. above one-fourth of the annual duty (that is, 30 per cent. of full annual duty). Motor cycle licences taken out in the last quarter to be 50 per cent. of the annual charge.

	£	s.	d.
Commercial goods vehicles including three-wheelers weighing 7 cwt. or over will pay according to weight, unladen—			
If not exceeding 12 cwt.	10	0	0
Above 12 cwt., but not exceeding 1 ton ...	16	0	0
,, 1 ton ,, ,, 2 tons ...	21	0	0
,, 2 tons ,, ,, 3 tons ...	25	0	0
,, 3 tons ,, ,, 4 tons ...	28	0	0
Over 4 tons	30	0	0
With right to draw trailer	2	0	0

[1] Command Paper, Cmd. 660. Price 3d.

The Chancellor of the Exchequer in his Budget speech said: "We propose substantially to adopt the recommendations of the committee." It appears, however, that in fact all the recommendations have been adopted and the Estimates presented to the House of Commons refer "for fuller details" to the text of the report. The only point open is whether three-wheelers weighing 7 cwt. or over unladen will be subject to the tax of £1 per unit h.p., but from the reference in the report this is no doubt intended. Mr. Chamberlain stated that he proposed to continue the existing motor car tax and motor car duties until December 31st, 1920, when they will be superseded by the new tax, and "the abatement of duty granted in the case of motor cars used by medical practitioners or veterinary surgeons will cease."

Minority Report.

One of the members of the Departmental Committee, Major Stenson Cooke, secretary of the Automobile Association and Motor Union, presented a Minority Report. He expresses the opinion that the substitution for the petrol duty of a heavy initial tax will have a disastrous effect on the development of motoring. His dissent is influenced by the following considerations:

"(*a*) That despite the proposed heavy increase, which presumably is intended to include the petrol tax already paid by the motorist, the Government are clearly unable to give any guarantee that when the duty is removed the petrol groups will give the consumer the benefit of any *permanent* reduction in price.

"(*b*) That the payment of a heavy initial tax, regardless of the extent to which the vehicle is used, will operate unfairly:

1. Upon owners of low priced cars of moderate speed. (Powerful cars, costing four times as much as the cheap low powered car usually owned by the motorist of moderate means, will actually pay less in taxation.)
2. Upon persons owning two or three cars, only one of which is on the road at a time.
3. Upon the large number of owner-drivers who by force of circumstances are, throughout the whole year, only able to use their cars occasionally or at week ends.

"(*c*) That this special taxation of motorists is a road tax, but on the unit system the amount of tax paid bears no true relation to the extent to which the road is used.

"(*d*) That the removal of the petrol duty automatically withdraws the preferential treatment rightly accorded to benzol, the chief home produced fuel, and thereby strengthens the already powerful grip of the petrol groups upon both industry and user.

"(*e*) That the heavy taxation proposed will discourage motoring, resulting in a reduction in the output of new cars and the restriction of the use of those already existing, with a consequent loss of revenue."

He goes on to say that the tax recommended by the majority of the Committee is calculated on an estimate of the total number of vehicles which will be in use at midsummer, 1920, when the output of cars will still be restricted; the proposed new tax will not be operative until 1921, in which year the number of vehicles will have greatly increased, so that the contributions required from the individual to the total sum would be much smaller. He contends that so long as special taxation of vehicles for road revenue is considered necessary there can be no justification for imposing the whole burden of it on one particular class of road users, and that all classes of vehicular traffic should contribute their proper quota for road purposes.

Major Stenson Cooke would continue the taxation on imported motor spirit on a flat rate basis, excluding all rebates, and would provide for a reasonable adjustment of the existing taxation with certain necessary amendments for the issue of quarterly licences, for the transfer of licences from one owner to another when a car or motor cycle changes hands, and for abatement of tax on old cars.

Transport Ministry's Calculations.

Appended to the report is a table prepared by the Ministry of Transport showing the relative burden of the present and proposed taxation. The calculations are based on the present taxes—namely, licence according to horse-power, and petrol tax 6d. a gallon, and the proposed new tax of 1s. per horse-power with no petrol tax.

The estimate is founded on the assumption that the reduction of 7d. per gallon promised by the petrol companies will be maintained, but, as the Committee points out, no guarantee that this will happen can be given. The character of the table may be illustrated by one or two items:

It is calculated that on a car 21.9 rating, with a consumption of 15 miles to a gallon and covering 7,500 miles a year, the present licence and petrol tax would be £18 16s.; the new horse-power tax, without petrol tax, would be £19 18s. 4d.

On a car 16.3 rating, with the same number of miles per annum, the present licence and petrol tax would be £18 16s.; the new horse-power tax, without petrol tax, £14 18s. 4d., a saving of £3 17s. 8d.

On a light car, 11.5, the present tax would be £10 13s., the new tax £10 15s., an increase of 2s.

These calculations do not take into consideration the rebate to medical men, and the estimates therefore are not applicable to their case. For instance, on a car 21.9 rating, the old licence was £3 3s. and the rebate on petrol £6 5s.; this is to be deducted from the present licence and petrol tax amounting to £18 16s., which is to be compared with the proposed new horse-power tax of £22.

Action by the British Medical Association.

The Chairman of the Medico-Political Committee of the British Medical Association has addressed the following letter to the Chancellor of the Exchequer, asking him to receive a deputation from the Association to lay before him the manner in which the medical profession will be affected by the new proposals:

Sir, 20th April, 1920.

As Chairman of the Medico-Political Committee of the British Medical Association, which represents a very large proportion of medical practitioners of the country, I desire to take the earliest opportunity of pointing out to you that the medical profession will be injuriously affected by the proposed changes in the motor car taxation set forth in the Budget. Their cars are used exclusively for purposes of their practice, and many of them have cars the power of which is much exaggerated by the R.A.C. formula; if all rebates are abolished the extra cost to the owner of a 21 h.p. car (R.A.C. rating), doing a mileage of 7,500 in the course of the year, will be £11 12s. In addition to this, it is absolutely necessary that some medical practitioners in rural and sparsely populated districts should keep two cars in order that they may not be prevented attending an urgent call owing to a car breakdown.

I beg to ask you to be good enough to receive a deputation from the British Medical Association to discuss this and other cognate matters which may be deemed desirable to lay before you.

Yours faithfully,

E. B. TURNER.

A communication has also been addressed to the Secretary of the Committee of Medical Members of Parliament, asking them to meet the members of the Medico-Political Committee in conference.

The Owner of Two Cars.

Dr. W. ROBINSON (Sunderland) writes: It must be remembered that it is necessary for most doctors to keep two cars in order that one may always be in running order, because of the liability of all cars in constant use to break down, and still more because of the great length of time—weeks or months—which it now takes to get a car repaired. Thus medical men will have to pay a double tax. For example, I use 400 gallons of petrol a year (net tax £5) and keep two cars (15 and 21 h.p.). The new tax will be £36 in full. It is to be hoped that only half the tax will be payable by medical men. The petrol tax is much the fairest, and those who use the roads most pay most.

The Automobile Association.

The Automobile Association intends strongly to oppose the proposals of the Committee, and has issued a letter to every member of the House of Commons who is a member of the association. The letter states that the executive committee of the Automobile Association has unanimously resolved that the petrol tax should be retained as against any alternative proposal for a largely increased tax on the motor vehicle, which it considers would be contrary to the interests of the country and have a disastrous effect on the development of motoring. It is urged that the equitable adjustment of the individual contribution for road purposes cannot be achieved by the payment of a lump sum per annum calculated upon horse-power or any other basis which excludes the gradation of the tax in proportion to the extent of road used. A list is given of the injustices to certain classes of motorists, among whom are (1) owners of cheap low-powered cars of moderate speed which, on the horse-power basis, actually pay more in taxation than powerful cars costing four times as much; (2) persons owning two or three vehicles, only one of which is on the road at a time. The opinion is expressed that the plan of taxing horse-power will defeat the object to raise a larger revenue, and a strong plea is made for putting the tax on motor spirit.

British Medical Journal.

SATURDAY, APRIL 24TH, 1920.

THE BUDGET.

To members of the professional classes the most important feature of the Budget introduced by the Chancellor of the Exchequer on April 19th is his undertaking to adopt, "with one or two trifling modifications in favour of the taxpayer," all the recommendations of the Royal Commission on the Income Tax with regard to differentiation and graduation of tax. The broad effect of the new system will be to do away with sudden jumps as an income rises, and to produce an effective rate of taxation which will progress uniformly as the income of the individual taxpayer increases. It also has the effect of transferring a certain portion of the charge hitherto borne by the smallest incomes to the larger and largest. Increased consideration is given to the responsibilities of the taxpayer who is married and has a family. A single person with an earned income up to £150 will pay nothing; a married couple without children will pay nothing up to £250, and a married couple with three children will pay nothing up to £350. A married couple with three children will pay £6 15s. if the earned income is £400; this is equivalent to a rate of 4d. in the £. At £500 the rate is 9½d.; at £800, 2s. 2½d.; at £1,000, 2s. 10d.; and at £1,250, 3s. 4d. All these rates are lower than hitherto paid. The super-tax will apply to all incomes exceeding £2,000, an alteration which it is considered will bring an additional 30,000 persons within the scope of the Act. Mr. Chamberlain's statement that he intends to embody the recommendations of the Royal Commission on Income Tax in a Finance Bill absolves us from going into further details here, for the whole system was fully explained in an article on income tax reconstruction published in the JOURNAL of March 27th last, p. 442.

A point of considerable interest and importance is that Mr. Chamberlain has accepted the suggestion to abolish the term "unearned income." It reflected a certain phase of political propaganda which has followed the doctrine of land values duties into limbo. It is now admitted that most unearned income is income from savings a man makes to provide for his own old age or for the maintenance of his widow and children. It is in future to be called "investment income," and although it will pay more it will not pay so much more as the doctrine of the past would have required. This principle was, indeed, admitted when allowance was made for premiums for life assurance. In some cases, when allowances for wife and children operate, an investment income will pay less than it did. A married couple without children with an investment income of £700 a year will in future pay exactly the same as before; with an investment income of £600 a year they will not pay so much. Thus the position of a man who has saved his money approximates to that of a man whose conditions of employment entitle him to a pension. On the other hand, married couples with earned income of £800, £900, and £1,000 a year will pay rather more. An earned income of £800 will pay £2 5s. more, of £900, £6 15s. more, and of £1,000, £18 15s. more. A married couple with an earned income of £800, entitled to the allowance for three children, will pay £11 5s. less than before; with £900, £14 5s. less, and with £1,000, £2 5s. less. These calculations are to be deduced from the tables in the Financial Statement issued on the day the Budget was introduced. A single person with an income above £350 will always pay more than hitherto, whether his or her income is earned or derived from investments. A single person with an earned income of £900 will now pay £168 15s. instead of £135, and with £1,000 he or she will pay £195 15s. instead of £150.

The result of the changes now to be made may be further illustrated by taking the effective rates of income tax on an earned income of £1,250, the amount in the tables which most nearly approaches the £1,300 a year which it was claimed during the arbitration on the rate of insurance medical remuneration should be the average income "for a good general practitioner successful enough to have enough work to occupy his whole time and filling up that time properly and conscientiously." For a single person the amount at present paid is £234 7s. 6d., an effective rate of 3s. 9d.; the proposed charge will amount to £263 5s., an effective rate of 4s. 2½d. For a married couple without children the charge now is £234 7s. 6d., an effective rate of 3s. 9d.; it will be £236 5s., an effective rate of 3s. 9½d. For a married couple entitled to the allowance for three children the amount now is £234 7s. 6d., an effective rate of 3s. 9d.; it will be £209 5s., an effective rate of 3s. 4d.

The supertax will in future affect incomes over £2,000, but the rate of increase on incomes near the margin rises slowly. Thus for the married couple entitled to an allowance for three children the supertax on £2,250 will be £19, and the total charge will be less than hitherto; it will be £506 in place of £591. The new rate is calculated to be equivalent to 4s. 6d. in the £. With an income of £4,000 a year the effective rate begins to rise rapidly; it is in the same case 6s. 1d. at that amount, 8s. 7d. at £10,000, 9s. 9d. at £20,000, 11s. at £50,000, 11s. 6d. at £100,000, and 11s. 8d. at £150,000, the limit of income beyond which the imagination of the Treasury does not extend.

In the changes proposed in the method of taxation of motor vehicles the Chancellor of the Exchequer has closely followed the recommendations of the Departmental Committee, details of which are given at p. 575. The effect will be to increase the amount medical practitioners will be called upon to pay when the effect of rebates now enjoyed is taken into consideration. Mr. Massac Buist dealt with the matter in an article published on April 10th, and deals with it again this week (p. 574); and on p. 576 is a letter the Chairman of the Medico-Political Committee of the British Medical Association has addressed to the Chancellor of the Exchequer, asking him to receive a deputation from the Association to lay before him the manner in which the medical profession will be affected by the new proposals. In this letter Mr. Turner lays special stress on two points: The first is that the R.A.C. rating is not a sound basis of calculation, since the calculation of horse-power by that formula ignores the length of stroke and relies upon the diameter of the piston and the number of cylinders. The second point is that medical practitioners in sparsely populated districts are often practically compelled to keep two cars to avoid the risk of a breakdown in one. We invite all members who use motors to read carefully the articles to which reference has been made and Mr. Turner's letter. The matter will be fully considered by the Committee of the Association at an early date. The whole scheme will come in for a good deal of opposition, and many members of Parliament have already expressed their intention to submit amendments.

TYPES AND TREATMENT OF EPIDEMIC ENCEPHALITIS.

M. NETTER, who has been so diligent in the study of lethargic encephalitis that some of his countrymen apply his name to the disease, recently communicated to the Académie de Médecine an account of his views on its treatment.[1] Before reproducing his recommendations we may note his statement that there have been more than 1,500 cases in Paris and about 10,000 in other parts of France. He admits that it is difficult to fix the rate of mortality, owing to the number of abortive, slight, and ambulant cases, but he estimates that about a third of the patients in whom a definite diagnosis can be made die. The high rate of mortality he attributes to several causes: firstly, the frequent affection of the medulla oblongata; secondly, the occurrence of pneumonia secondary to paralysis of the vagus or the glosso-pharyngeal; and thirdly, the marasmus, often complicated by bedsores, which is the fate of patients in whom symptoms last for several months.

Drs. Farquhar Buzzard and Greenfield, in a paper in the current issue of *Brain*,[2] in commenting on several cases of mild encephalitis in which the physical signs were generally trivial and but for careful examination would easily have escaped notice, express the view that the total number of cases must have been very numerous during the last two years. Mild cases, they state, are characterized by an inclination to fall asleep while sitting down to rest, a tendency to forget the small things of everyday life, and sometimes by an alteration of temperament. The patient may complain that although he is always dropping off to sleep in the daytime, at night he is restless and disturbed by mild cramps or pains in the limbs, so that he wakes every hour or two. In such cases there may be neither headache nor fever, and diplopia may be very transitory; diagnosis therefore may be difficult and the history given by the patient a most important factor. Yet early diagnosis is a matter of great importance, since patients suffering from inflammation of the brain should be prevented from carrying on their normal activities, even though not troubled with headache, vomiting, or pyrexia. In more severe attacks the symptoms vary very much, but, as is observed, this is to be expected in inflammation of an organ with so many functions. The diagnosis must be determined by a consideration of the onset and course of the disease and by the elimination of other pathological conditions capable of producing similar symptoms and physical signs. Thus in one class of cases hemiplegia or hemianaesthesia is present; in another the symptoms resemble those of paralysis agitans (the basal ganglia group); while those of a third class are characterized by disturbances of function of the cranial nerves, the commonest evidences of which are diplopia and ptosis.

G. Sabatini[3] proposes to classify the cases, according to the predominant symptoms, into four varieties. In the first, lethargy is the chief feature; ocular palsies are limited and delirium and symptoms of motor irritation are absent. In the second or hyperkinetic form,[4] after a short prodromal stage characterized by headache, pains in the bones, restlessness and slight rise of temperature, choreiform movements (clonic muscular jerks) of the abdominal muscles, face, and limbs, develop, accompanied by muscular hypertonus and rigidity of the vertebral column, with high fever and delirium. Cases of this type may die within a few days, but in others there is a remission, followed often by lethargy, which may deepen into coma ending in death. In a third type paralysis of the cranial and spinal nerves predominates, and the general condition and mental state are unaffected. The fourth or mental form is rare; in it the patient is in a state of confusion with regard to time, place, and personality, critical power and will being abolished.

Buzzard and Greenfield call attention to the fact that months after the original illness relapse may occur, attended by involuntary movements, which may be irregular and choreiform and limited in distribution. They are present when the patient is resting, but disappear during sleep and when the limb is in voluntary use. The paper contains a report of careful histological examinations of the brain in a series of fatal cases. The appearances varied, but the features common to all cases were vascular congestions, toxic degeneration of the nerve cells and neuronophagy, infiltration of the nervous tissue by proliferating cells of the vessel walls, small cell infiltration of the space around the veins, and glial proliferation. Venous thrombosis and haemorrhage were observed in a considerable number of cases; sometimes the haemorrhage surrounded a congested vessel, but in others it had broken through and spread into the tissues for some distance beyond.

Professor Netter is convinced that the virus of lethargic encephalitis is of the same type as that of poliomyelitis, and, like it, is filtrable, and to be found not only in the nervous system, but in the nose, throat, and the mouth. He bases his treatment upon this conception. Though he thinks that some value is to be attached to specific treatment by the intrathecal injection at the onset of the disease of serum taken from a patient who has recovered from it, he considers it premature to recommend this method, for the reason that there is no evidence that an antibody appears in the blood in lethargic encephalitis at an early date, and also for the further reason that in a case lasting several months it would be necessary frequently to repeat the injection. He believes that the administration of hexamine is likely to be useful, but insists that it must be given by the mouth and not by intravenous injection, since the object is to produce a continuous action on the nerve centres, and the drug if injected into the blood disappears very rapidly. The fact that in some cases swelling of the salivary glands and salivation has been observed, and the further fact that the virus of rabies and of poliomyelitis may be found in the mouth, led him to recommend resort to pilocarpin, in the hope of hastening the elimination of the virus; he would combine with it adrenalin to counteract the depressing effect of pilocarpin on the heart. His great standby in treatment, however, is the production of a local abscess by an injection of turpentine. In all serious cases he injects at the earliest possible date one or two cubic centimetres (16 to 32 minims) of turpentine into the outer side of the thigh. In 27 cases so treated an abscess, requiring incision, was produced in 19; only two of the 19 died, and 13 of them, who had been in an apparently hopeless condition, recovered completely; that is to say, he had 17 recoveries out of 19 cases in which an abscess formed, whereas of 25 serious cases not so treated, 13 died. Of the 19 cases 14 were of the myoclonic type in which the prognosis is said to be particularly bad. He recalls the fact that Hippocrates, who knew a disease called lethargus, said that the patients who recovered generally had an

[1] *Bull. de l'Acad. de Méd.*, lxxxiii, p. 303.
[2] Vol. xlii, part iv.
[3] *Il Policlinico*, Sez. Prat., January 26th, 1920.
[4] Two examples of this form are recorded by Dr. Boveri of Milan at p. 570.

empyema, by which is to be understood an abscess in any part. Why the injection of turpentine, leading to the formation of an abscess, should produce such a favourable effect, Netter does not find it possible to explain, but he suggests that the reaction caused by the turpentine affects the organs which produce the bodies that enable the system to defend itself against the disease; he mentions that his house-physician had shown that myelocytes appear in the blood, indicating, as he thinks, that the bone marrow is stimulated to special activity. He considers that the various serums, vaccines, prepeptones, and nucleinates that have been recommended have probably produced their effect in the same way, but are not so free from danger as the production of an artificial abscess. Finally, he condemns very strongly the use of arsenic, having seen neo-salvarsan produce a disastrous result, and of antimony he says that it seems to have no effect.

"*Hic morbus non est novus*," Dr. F. G. Crookshank quotes from Polydore Vergil in an article[5] founded on a paper contributed last year to the Section of the History of Medicine of the Royal Society of Medicine. It will be remembered that at a discussion[6] at that Society in October, 1918, Dr. Hamer, medical officer of health for London, dwelt on the epidemiological relations of influenza, cerebro-spinal fever, and lethargic encephalitis. Dr. Crookshank also goes back to Hippocrates, who described paraplegias occurring in association with burning fevers, by which is to be understood influenza. He, however, contents himself with asserting that clinical cases of the nature now ascribed to encephalomyelitis or encephalo-myelo-meningitis, have been reported for the last 450 years at least, and that they have occurred and been noted as incidental to major prevalences, known historically as the sweating sicknesses, the epidemic catarrhs, influenzas, and the like. Special prevalences of such cases have been described as manifestations of special diseases, but have usually appeared shortly before or after major influenzal epidemics or in geographical proximity. Epidemic encephalo-myelo-meningitis, Dr. Crookshank considers, represents an intensive and specialized reaction that has the same epidemiological relation to pandemic influenza as have the prevalences and epidemics of "septic" pneumonia, of gastro-intestinal illness, and of other maladies described as occurring before and after the wide diffusions generally referred to as pandemic influenza.

We must accept the epidemiological evidence for these associations, but their explanation remains mysterious, for the epidemiologists must not convince us that influenza and poliomyelitis or lethargic encephalitis are due to the same virus.

PATHOLOGICAL MUSEUM AT THE CAMBRIDGE MEETING.

THE Committee appointed to organize the Pathological Museum in connexion with the Annual Meeting of the British Medical Association at Cambridge in June propose to arrange the material under the following heads: (1) Exhibits bearing on discussions and papers in the various Sections. (2) Specimens and illustrations relating to any recent research work. (3) Individual specimens of special interest or a series illustrating some special subject. (4) Instruments or appliances relating to clinical diagnosis and pathological investigation. The Museum will comprise a series of exhibits illustrating the following subjects: "War specimens," arthritis, cerebro-spinal meningitis, parasitology. The committee will be glad to take charge of and place in the Museum for exhibition any specimens, casts, photographs, diagrams, or microscopic slides during the time they are not required by those who are reading papers or taking part in the discussions. The Museum will occupy a central position in two temporary buildings in the first court of the Medical Schools. It will be open during the entire week beginning Monday, June 28th. So far as practicable each section will be under the charge of a curator for demonstration purposes; but arrangements will be made for exhibitors to have an opportunity of demonstrating their own specimens. Every care will be taken of the specimens, and the contents of the Museum will be insured. The chairman of the Pathological Museum Committee is Sir G. Sims Woodhead, K.B.E., Professor of Pathology in the University of Cambridge. The honorary secretary is Dr. H. B. Roderick, to whom communications regarding material for exhibition should be addressed at the Surgical Department, Medical School, Cambridge.

A TIME FOR SPEECH.

THE *Nottingham Guardian*, on April 12th, published a very good letter under the heading "Nottingham M.P.s taken to task." Plainly, it is written by one of our profession in Nottingham; he writes well and with authority, and he deals faithfully with two members of the House of Commons who are favouring antivivisection. They are probably feeling some surprise that they are thus called to account. For Nottingham is accustomed to antivivisection statements, and our profession in Nottingham was working too hard through the war to give attention to them, or was indifferent to them. It is likely enough that these two members of Parliament thought that nobody would be seriously offended by their action. But here is somebody who is very seriously and very properly offended. And he has set a good example to all of us, especially to our profession in Nottingham. Of course the public is well aware that "the doctors" are solidly hostile to antivivisection. How could they not be when it is furiously attacking the use of diphtheria antitoxin and the protective treatments against typhoid and paratyphoid and tetanus? But so long as it can find among 50,000 doctors half a dozen on its side it will tell the public that "medical opinion is divided on these questions of treatment," and will advise people not to let the doctors "pump animal filth" into them. That, indeed, is why we hate antivivisection. Over a good many points we are willing to make allowance, concessions, compromises; but when we find antivivisection, with its nonsense about antitoxin, behaving as an enemy of the people, then we, who are honest servants of the people, do well to hate it. For example, one of the antivivisection societies is distributing everywhere a tract which says: "It is admitted, even by the supporters of antitoxin, that this 'remedy' is accountable for a great increase in the cases of paralysis. . . . Antitoxin is useless, unscientific, and harmful." We must not be polite to the devil when we find him sowing tares among our wheat. It is most unlikely that the two Nottingham members would countenance this "evidently effective piece of propaganda," as one antivivisection society calls the tract from which we have quoted. Still, it is a good thing that a Nottingham doctor has taken them to task. And some of us may have occasion to follow his example. It is of little use to say anything during the rush and excitement of election time. Every member, or would-be member, of the House of Commons is at that time besieged and overwhelmed with all sorts of appeals, but we can say something in quieter times if our local representatives in Parliament give their support to a "propaganda" which misrepresents us, derides our faith, abuses our works, and is dangerous to the public health. We may be content to say it privately or we may feel bound to say it in the press. One way or the other we ought to say it.

[5] *Medical Press*, 1919.
[6] BRITISH MEDICAL JOURNAL, 1918, vol. ii, p. 488.

POST-GRADUATE EDUCATION IN LONDON.

THE co-ordination and organization of medical post-graduate education in London is being methodically and effectively continued by the Fellowship of Medicine upon the sound lines laid down by its promoters at their foundation meeting. One of the original aims of the Fellowship was the establishment of a central bureau from which information respecting post-graduate facilities in Great Britain could easily be obtained. This has now been established and the Fellowship has become a recognized centre for such information. Inquiries daily arrive from medical men in all parts of the world who wish to map out courses of work in London and the provinces. Visitors from the Continent and from Overseas seem usually to find their way to the offices of the Fellowship within a few hours of their arrival. Last year's energies are also bearing gratifying fruit: the graduates who attended the London hospitals and schools last summer have clearly given a satisfactory account of their reception, for most of those who are coming over now from the Dominions and the United States are "personally recommended." The legend that London is a "cold place" for the medical stranger (a widely-spread reputation which has done incalculable harm to post-graduate work in this country) is at last being destroyed. It is admitted that London offers not only a vast field of work, but also a warm welcome to those who wish to avail themselves of such opportunities. The last issue of the weekly *Bulletin* of the Fellowship shows clearly the possibilities of the work as now co-ordinated by the present organization. The medical graduate, after a short study of the daily programme, can easily plan a course of study in any department and carry it out at almost any time of the day. These advantages are certainly not being fully appreciated by practitioners in London and the provinces, and the fact is somewhat disappointing. Whilst the London courses are attracting graduates from Overseas and from the Continent, they have not yet aroused the enthusiasm of men who are within easy access of such valuable facilities. Many reasons may be suggested, but perhaps one explanation is that the present courses arranged by the Fellowship are not sufficiently known to the British medical man. If this be so he cannot do better than write to the Secretary of the Fellowship of Medicine, 1, Wimpole Street, London, W.1, for a copy of the *Bulletin*. If he states the special department of work in which he is interested his name will be registered, and it will be strange if his needs are not met.

THE MIDDLESEX HOSPITAL.

WE recorded in the early part of this year the endowment by Mr. S. B. and Mr. J. B. Joel of a chair of physics in the Middlesex Hospital and the appointment to the hospital of a professor of pathology and radiology, both, like the Joel professor, professors in the University of London. Of the 500 beds in the Middlesex Hospital, 100 are reserved for patients suffering from cancer; it possesses special cancer investigation laboratories, and the Bland-Sutton Institute of Pathology, both admirably equipped for investigation and teaching, and all these, together with the medical school, are closely connected. The governors of the hospital, at a special meeting on April 15th, showed their appreciation of the importance of promoting medical research. Lord Athlone, who presided, moved a resolution whereby the scheme for the amalgamation of the cancer research department and Bland-Sutton Institute of Pathology with the medical school, as adopted by the weekly board of governors, was approved, and subsequently the necessary alterations were made in the laws of the hospital. The scheme not only provides for the closer union of research, teaching, and treatment, but contemplates also a considerable enlargement of the provision for cancer and other research. If sufficient philanthropic aid be forthcoming, it is sought to endow chairs of chemistry and pharmacology, and thus it is hoped to have professors of chemistry, physics, radiology, anatomy, physiology, pathology, and pharmacology, each of whom shall be a professor of the University of London, and shall at the same time be attached both to the medical school and hospital. At the latter each will have direct access to the wards and at the former he can conduct his investigations in the laboratory and communicate his findings in the classroom, so that research, treatment, and teaching will be systematically bound together. Benefit is bound to accrue from the close association and co-operation within one institution of the workers in all the different departments. Problems arising in medical research are of such complexity as to demand for their ultimate analysis and solution knowledge of many branches of pure and applied science; advantage must, therefore, be derived from close co-ordination and interrelation of kindred groups of workers.

DRIED MILK AND VITAMINES.

A CORRESPONDENT informs us that he has been told by an analytical chemist of his acquaintance that at least 30 per cent. of the milk sold in London is compounded from dried milk, and that so long as this mixture shows the presence of the minimum legal amounts of fat and non-fatty solids it can be lawfully sold as cow's milk. He assumes that "dried milk has lost its vitamines," and suggests that such milk, given in good faith to infants, may have a deleterious effect on their growth. The suggestion that a considerable proportion of London milk is made from desiccated milk powder should not be too readily accepted, although a solution of dried skimmed milk would no doubt serve for diluting milk to the legal standard of fat content. Samples of milk are regularly examined by the Public Health Department of the London County Council in connexion with the feeding of school children. In 1917 and 1918 the extent to which they were found to be adulterated was great; 37 per cent. showed evidence of adulteration in 1917. Conditions have greatly improved since, and samples recently taken have usually been normal in appearance and have not shown the white deposit or other peculiarities of diluted dried milk. The Department, we understand, has no reason to believe that the compounding of milk for sale in London from dried milk takes place to any great extent. The assumption that "dried milk has lost its vitamines" is only partially correct. It is true that the antiscorbutic vitamine (water-soluble C) is rapidly destroyed by heat, and is absent from even the most powerful antiscorbutics when they have been desiccated; but the water-soluble B, or anti-beri-beri vitamine, is resistant to heat, and only very slowly undergoes disintegration at the temperature of 100° C. The stability of the fat-soluble A factor is not so clearly established. Osborne and Mendel, and also Drummond, believed it to be very resistant to heat; but according to American experiments, confirmed in this country, and mentioned in the Report of the Medical Research Committee[1] (p. 23), the fat-soluble accessory substance A is gradually destroyed at 100° C., and four hours' exposure to that temperature is sufficient to render butter fat of little greater value, as far as vitamines are concerned, than an equivalent quantity of lard. It seems clear, therefore, that in the process of desiccation there is a risk of losing the antiscorbutic vitamine (C); the extent to which the other two accessory factors are destroyed depends upon the particular method used by the manufacturer. Dr. F. J. H. Coutts, in his report to the Local Government Board (1918), shows that the degree of heat employed in the various commercial processes varies greatly; in some the milk, it is said, does not attain a temperature of more than 50° C., but in others temperatures considerably higher than 100° C. are used. The freezing process described in 1910 by Lecomte and

[1] Report of Medical Research Committee, 1919. H.M. Stationery Office.

Lainville, which would appear to be ideal so far as the preservation of vitamines is concerned, does not seem to have been used on a commercial scale. Besides the possible destruction in preparation, however, disintegration of vitamines may occur (as Dr. Coutts has pointed out) when the dried milk is kept for long periods of time. The medical officers of many infant welfare centres where much dried milk is dispensed have prescribed fruit and vegetable juices to supplement a possible vitamine deficiency of the dietary; some, however, have come to the conclusion, as a matter of experience, that this precaution is not needed.

THE MACKENZIE DAVIDSON MEMORIAL LECTURE.

THE first Mackenzie Davidson Memorial Lecture was delivered by Sir Ernest Rutherford, F.R.S., at the meeting of the Section of Electro-therapeutics of the Royal Society of Medicine on April 16th. Professor Rutherford paid a tribute to the scientific enthusiasm and imagination of the man the lecture commemorated, and in particular to his remarkable readiness to help his colleagues and give freely of his time and ideas. He referred also to the Mackenzie Davidson Memorial Fund, which has in view the establishment of an institute for teaching and research in radiology, to which possibly a chair at some university could be attached. Radiology had arrived at the parting of the ways, and the old haphazard organization would not suffice if a steady advance was to be maintained in knowledge and in methods. In the past there had been little or no systematic teaching of radiology, and it spoke volumes for the enthusiasm of many workers in this field that they had surmounted the difficulties attaching to the subject and acquired a working if not a profound knowledge of its physical as well as of its medical side. The University of Cambridge had established a diploma in radiology and electrology, and in London, under Sir William Bragg at University College, about thirty students were now taking the first course with a view to that diploma. Until the diploma was well established it seemed desirable to have systematic courses of instruction in two or three convenient centres. In the second part of his lecture Sir Ernest Rutherford devoted himself to a review of the effects of radiations upon matter. He pointed out that the effects of x rays in treatment were in most respects similar to those of the beta and gamma rays of radium. This similarity of effect produced by two sets of rays proceeding from such different sources was only what would be anticipated from the standpoint of physics; for the effects of x rays, and of radium rays also, were due not to the direct action of the rays themselves on the tissues, but to their power of causing the ejection of a high-speed electron from matter. All radiological effects were ultimately reducible to the effect of electrons in motion. The therapeutic effects of x rays and radium rays were to be ascribed to chemical action; the physical changes observed in treatment, however important these might be, were only secondary and a consequence of the primary chemical changes produced by the radiation. The researches of C. T. R. Wilson and others had shown that radiations did produce such chemical changes in gases, and it was extremely probable that the same kind and order of changes took place in the tissues. The main problem of radiology was to find out the conditions under which x rays and radium rays passing into the tissues could exercise a beneficial action and not a detrimental one, and with a view to its solution he pleaded for a closer co-operation between the physicist and the medical man in research.

THE MEDICAL STUDENTS' REGISTER.

THE new *Medical and Dental Students' Register*,[1] issued by the General Medical Council, gives the names and other particulars of all students registered during the year 1919, together with statistical matter. There is also the usual tabular statement of the number of medical students registered in each year in each of the three divisions of the United Kingdom from the beginning of students' registration in 1865 to the end of the year under review. In our issue of November 1st, 1919, p. 565, the analytical table given in the *Students' Register* for 1918 was summarized, and we printed a chart showing in graphic form the numbers of medical students registered in each of the preceding fifty-four years. From 1865 until 1881 the total number of registrations in the United Kingdom mounted steadily from 600 to 2,171; then for the next nine years it fluctuated around 1,900. In 1891—the year before the enforcement of a compulsory five years' curriculum—there was a sharp rise to 2,405, with an even more abrupt fall in the following year. Throughout the two following decades the total gradually declined to 1,232 in 1911—the smallest entry since 1873. From this low level it mounted year by year until 2,253 was reached in 1918. The figures for 1919 far surpassed all previous records. The total number of registrations in the United Kingdom was 3,420, being more than 1,000 greater than the record entry of 1891. Scotland again heads the list, with 1,387 new students; England and Wales had 1,375, and Ireland had 658. During the fifty-five years of students' registration rather more than 89,500 medical students were registered in the United Kingdom, the percentages being approximately 47.5 for England and Wales, 32.9 for Scotland, and 19.6 for Ireland.

[1] London: Constable and Co.

MEDICAL INSPECTION IN SECONDARY AND CONTINUATION SCHOOLS.

THE Education Act of 1918 greatly extended the responsibility of local education authorities with regard to medical inspection of schools. Previously the duties of these authorities were limited to elementary schools; the Act imposed on them responsibilities with regard to secondary schools, continuation schools, pupil teacher centres, junior technical schools, and other similar schools or institutions provided by an authority. The provisions came into force in August, 1918, but they were not obligatory. The Board of Education has now made an Order fixing April 1st last as the day on which the operative section (18) of the Act came fully into force, and has issued a memorandum explaining the object in view, together with draft statutory rules,[1] which will come into force unless objection is raised to them in Parliament. The order applies only to pupils in secondary schools provided by an authority, but it is hoped that authorities will show themselves willing to provide for the medical inspection of pupils attending any school or educational institution if so requested by the governing body. The board considers that the medical examination at the age of 12 should as a rule be complete, and holds that the examination at the age of 15, which comes at the end of the school career of the majority of pupils, is of special importance, and should be complete in all cases. The memorandum goes on to point out that medical inspection is not an end in itself, but is intended to provide data for appropriate action, remedial or preventive. It is considered that the remedial provision to be made by an authority would probably be limited in practice to the examination of eye defects and the provision of spectacles, to dental inspection and treatment, to the operative treatment of tonsils and adenoids, to the treatment of such minor ailments as skin diseases, running ears and sore eyes, and to remedial exercises. The medical inspector would give attention also to the sufficiency of the general measures for the prevention of infectious diseases, to the adequacy of the ventilation, lighting, and sanitation, to the suitability of the physical training, and to the means taken to avoid over-pressure in the course of preparation for examinations. The order enumerates the conditions upon which grants will be made; they include,

[1] (Cmd. 635) Price 1d.

in addition to initial medical inspection in the term following admission, inspections in subsequent years; adequate steps are to be taken to co-ordinate the system with other activities of the school medical service, and also with the work of the public health service in the area. It is recommended that a woman doctor should, where practicable, be employed to inspect girls. A model schedule is given to be used as a form of record; this follows closely the lines of that which is in use in elementary schools, but additional headings are inserted for inspiratory and expiratory chest measurements, near vision, colour sense, flat-foot, and catamenia.

ANNUAL OPHTHALMOLOGICAL CONGRESS.

THE annual congress of the Ophthalmological Society of the United Kingdom will be held in London at the house of the Royal Society of Medicine during the last week of April. The proceedings will be opened on Thursday, April 29th, when the president, Mr. J. B. Story, F.R.C.S.I., will deliver an address. A series of papers will afterwards be read, and in the afternoon there will be a clinical meeting at the Royal London Ophthalmic Hospital, when cases and specimens will be shown; afterwards Mr. Percy Flemming will give an address on "The neighbourhood of Moorfields in former days," illustrated by lantern slides of maps of old London. This will be followed by a discussion of cases, and in the evening the members will dine at Oddenino's Restaurant. On the morning of Friday, April 30th a discussion on diabetes in relation to diseases of the eye will be opened by Sir Archibald Garrod and Mr. R. Foster Moore. At the business meeting on the afternoon of that day two proposals of the council will be discussed: one is that the annual subscription should be raised to £1 11s. 6d., and the other that subscriptions and donations should be invited to a special reserve fund for publication, so as to obviate the necessity of asking members who read papers before the society to contribute towards the cost of illustrations. In the evening a series of papers will be read. On Saturday morning a visit will be paid to the special hospital of the Metropolitan Asylums Board for cases of ophthalmia neonatorum, and there will be a discussion on the prevention and treatment of that disease, to be opened by Dr. Gibbon FitzGibbon, Master of the Rotunda Hospital, Dublin, and Mr. M. S. Mayou. The Council of British Ophthalmologists will hold a meeting, which all British ophthalmologists are invited to attend, at the house of the Royal Society of Medicine on Friday, April 30th, at 4 p.m., when a report of the council on the work done during the last two years will be submitted.

SIR WILLIAM ARTHUR ROBINSON, K.C.B., C.B.E., has been appointed to be First Secretary of the Ministry of Health, in succession to the late Sir Robert Morant. Sir William Robinson, who was born in Westmorland in 1874, was educated at Appleby School and Queen's College, Oxford, and took a double first in classics. He entered the Civil Service in 1897, was the secretary of the Dominions Royal Commission, 1911–12, and assistant secretary, Office of Works, 1912–18; he has been permanent secretary to the Air Council since 1918.

A CONJOINT meeting of the Obstetric and Gynaecological Section of the Royal Society of Medicine and the North of England and Midland Obstetrical and Gynaecological Societies will be held in London at the Royal Society's house, 1, Wimpole Street, on Thursday, May 6th. The discussion at the morning session (10.30) on the treatment of ante-partum haemorrhage will be opened by Dr. Hastings Tweedy, and at the afternoon session (2.30) Dr. Eardley Holland will read a paper on rupture of the Caesarean section scar in subsequent pregnancy and labour. A dinner will be held at the Great Central Hotel; Mr. J. D. Malcolm, President of the Section, will take the chair at 7.30.

Medical Notes in Parliament.

The Budget.

THE Budget figures have become so colossal that they are difficult to follow. It was generally agreed, however, that Mr. Chamberlain's exposition on April 19th was exceedingly well prepared, and as lucid as it could possibly be in the circumstances. This clarity was necessarily achieved by much elimination of details, and only the main outlines can be traced here. Broadly there were three statements: the first concerned the financial year ended on March 31st, and on this the accounts show a realized deficit of £326,000,000; secondly, this was followed by a statement of what the position would be at the end of the current year—that is, on March 31st, 1921—on the basis of estimated expenditure and of revenue on the basis of existing taxation; this would afford a balance of £164,198,000 for debt reduction, due mainly to reduction in the service expenditures. The third statement set out the effect of the proposed new taxation. The changes, it was estimated, would produce in full £198,230.000, or, excluding the £9,500,000 to be drawn from extra Post Office charges, £189,000,000, derived as follows: From direct taxation, £125,000,000; from indirect taxation, £64,000,000. The net additional revenue from these resources for the current year is estimated to be £76,650,000, making a total revenue for the current year of £1,418,300,000. The grand totals for the current year were estimated as under:

Revenue	£1,418,300,000
Expenditure	£1,184,012,000
Balance for reduction of National Debt	£234,283,000

The particular interest of the speech was, of course, in the narration of the methods by which it was intended to raise the extra money. A fuller explanation of the income tax changes will be found elsewhere. They follow the recommendations of the Royal Commission, and the Treasury gains under the whole scheme of alterations mainly from the fact that the supertax limit is reduced from £2,500 to £2,000 and the rate is advanced. Mr. Chamberlain follows the scale put forward by Lord Colwyn's Committee, and goes beyond it as regards incomes of over £30,000 a year, adding 6d. to the maximum of 6s. set forth in Lord Colwyn's scheme. Mr. Chamberlain did not, as was expected, remove the excess profits tax and substitute a tax on limited liability companies on their gross profits. Instead he announced that the excess profits tax would be retained and increased from 40 per cent. to 60 per cent., and that in addition there would be a company tax technically called a corporation tax of 1s. in the £, but not deductable until the excess profits tax had been reckoned in the accounts; in no case is this duty to exceed the equivalent of 2s. in the £ on net profits after payment of interest and fixed dividends. The tax will not apply to the first £500 of profits. Mr. Chamberlain gave the impression that he is still hopeful of a practical recommendation for a war profits levy, in which case he will introduce a supplementary budget, and obviously the excess profits tax would in that case have to be revised. Mr. Chamberlain's argument is that the excess profits duty is necessary in existing circumstances as an equitable balance to the supertax imposed on private traders and professional men.

Over and above these new serious burdens there is the feeling that the Budget inflicts numerous vexatious pinpricks on trade, and is liable especially to hurt the small business men who are trying to make good. The fact that the Post Office is no longer a profit-making concern, but a subsidized undertaking, has to be recognized, but the view is strongly held that its activity on the largest possible scale is a vital necessity to business enterprise. With the advance in the charge for inland letters from 1½ to 2d., for telegrams from 9d. to 1s., and ultimately for postcards from 1d. to 1½d., a blow has been struck at the hope of averaging cost beneficially by a larger output. The extra halfpenny for newspapers comes also at a most inopportune time, when the cost of paper has gone up 500 per cent. and establishment expenses have more than doubled.

The proposals with regard to motor taxes are fully dealt with elsewhere in this issue. The proposal to get an extra six million from the stamp duties has caused a good deal of perturbation, but Mr. Chamberlain's motive is to lessen company transactions which tend to divert money from Treasury securities into speculative ventures.

The increase in the excise on beer of about 50 per cent. (calculated to mean about a penny a pint extra) will not be popular. The increase in the duty on whiskey is about 2s. 6d. a bottle, and the retail price is to be 12s. 6d.; of this amount nearly 8s. 6d. is represented by duty. The excise on light wines is raised from 1s. 3d. to 2s. 6d., and on heavy wines, such as port, from 3s. to 6s. The duty on sparkling wines imported in bottles is also doubled, and a 50 per cent. *ad valorem* duty added. Mr. Chamberlain, however, stated that the total duty payable on champagne will be not more than about 6s. a bottle. The yield from the *ad valorem* duty on sparkling wines is estimated to amount to £1,800,000 in the current year, and £1,900,000 in a full year. The proposals in the Budget received on the whole a favourable reception from the House, as it is recognized

that the Chancellor of the Exchequer has been reasonably impartial.

In the course of the debate in Committee, on April 20th, Sir John Butcher said that the abolition of the abatement granted to doctors and veterinary surgeons in respect of motor car duty would be a hardship to men who had to do a great deal of travelling in the course of their professional work. He hoped that the Chancellor of the Exchequer would reconsider the matter. Mr. Chamberlain said he would convey what had been said to the Minister of Transport, who was dealing with that part of the proposals.

Municipal General Hospitals.—Mr. Lyle asked, on April 14th, with regard to the approval given by the Minister of Health to the establishment of a municipal hospital at Bradford, for what special reason, and on what conditions it was given, and whether consent would be extended to other local authorities putting forward similar proposals; whether it agreed with his policy as enunciated on February 26th, 1919, in the House and elsewhere at other times; whether he was prepared to make a statement as to his policy in regard to voluntary hospitals; and whether, before sanctioning further hospitals supported out of public funds, he would consider the position of voluntary hospitals which had for years done invaluable public work, which were now hard pressed for funds to continue their efforts, and which were bound to be most prejudicially affected by competition on the part of organizations that would never experience stress in respect of either upkeep, maintenance, or administration. Dr. Addison replied: I have sanctioned a scheme supported by all parties on the Bradford Council for the establishment of a municipal hospital which appeared to me the only practicable method of providing institutional accommodation necessary to meet the needs of the city. I see nothing in this decision inconsistent with the statement to which the hon. member refers. As regards the last part of the question I fully appreciate the value of the work done by the voluntary hospitals, and I am aware of the difficulties under which they are now labouring, but I am not yet in a position to make any definite statement. Mr. Lyle inquired whether this meant that every other borough and town would be enabled to set up hospitals if it applied in the same way. Dr. Addison said that pending further legislation which was now being prepared, he had to consider cases on their merits as they arose. This was the only way of meeting the necessities of the case.

Medical Aspects of the Divorce Law.—In the debate raised in the House of Commons, on April 14th, on Mr. Rendall's motion that legislative effect should be given without delay to the recommendations in the majority report of the Royal Commission on Divorce, Lieut.-Colonel Raw dealt with three recommendations of the majority report—namely, those in reference to incurable insanity, habitual drunkenness, and the position of one who was the wife or husband of a person under a commuted death sentence. There were in the United Kingdom 140,000 persons certified as insane under the Lunacy Acts, and of that number 50,000 were suffering from incurable dementia, which should be considered as a ground for divorce. Between 30,000 and 40,000 of these people were married, and in a very large number of instances the husband or wife might not know each other; a great many of them did not realize that they were married at all. It was suggested in the majority report that after five years of detention a person suffering from this form of insanity should be examined at the request of wife or husband by a body of medical experts who would then be satisfied whether or not the case was curable. If they were satisfied that it was incurable, that might be a ground for divorce. These cases were particularly hard amongst the poor. He did not suggest that any other form of physical or mental disease should be a ground; but sufferers from this disease might live for forty or fifty years before death came. He hoped that the day would come when marriage would be prohibited to those suffering from epilepsy and from other forms of mental disease. With regard to habitual drunkenness it was proposed that after a separation order had been in force for three years, if the drunkenness continued and there was no evidence of any improvement, the husband or wife might petition for divorce. It was said on very high authority by those who had great experience of cases of this kind that from 90 to 95 per cent. of habitual drunkards died drunkards. Long experience had shown that if habitual drunkenness continued for three, four, or five years without evidence of improvement, there was no possibility or hope of cure, and it should be a ground for petition for divorce. On the third point, the position of the wife or husband of one who had been sentenced to death and reprieved, he said that there was nothing more distressing than that an innocent woman had to remain the wife of a convict for twenty or twenty-five years without any possible means of improvement. Lady Astor, while sympathizing with the position of those referred to by Lieut.-Colonel Raw, doubted whether relaxation in the divorce laws would help the great bulk of men and women in the country, and therefore voted against the motion. The Government left the House to express its opinion by vote as it thought fit, and on the division the motion was rejected by 134 votes to 91.

Treatment Allowances to Pensioners.—In reply to a question by Colonel Ashley, on April 14th, Major Tryon said that treatment allowances under Article 6 of the Royal Warrant set out in the revised Circular 204 were confined to cases in which the Ministry had certified that a man should undergo a course of treatment, and was in consequence rendered unable to support himself. They were not given as compensation for incapacity, whether total or partial, resulting from disablement. The provision of such compensation was the function of the disablement pension. If the principle of average assessment were questioned, it should be remembered that the only alternative was repeated reboarding at short intervals—a process which would be costly to the State and intolerable to disabled men. In reply to Lieut.-Colonel Guinness, on April 15th, Mr. Macpherson said that the administration of Article 4 of the Royal Warrant, under which a pension could be reduced for refusal to accept treatment, or for such misconduct as was deemed to constitute refusal, was in the hands of the regional Commissioners of Medical Services of the Ministry, to whom recommendations were made by the Local War Pensions Committees. The instructions given to the committees in the handbook and to the Commissioners of Medical Services were generally found to be satisfactory, and he did not consider that they needed to be amended. He was aware that the local administration of pensions in Ireland was beset with difficulties which were not experienced in other parts of the United Kingdom, but he was not aware that these difficulties related in any disproportionate degree to the men leaving an institution or being discharged for breach of discipline.

Medical Assessors.—Major Molson asked, on April 19th, whether, as the medical men employed as assessors on sessional rates were continuously employed for the same hours as the Medical Commissioners, the Minister of Pensions could see his way to pay them as equitably and allow them leave with pay and sick leave with pay. Major Tryon (Parliamentary Secretary to the Ministry of Pensions) replied it was not considered that medical assessors employed at sessional rates were inequitably paid. Their conditions of service were different from those of whole-time Medical Commissioners or Deputy Commissioners. The question of leave with pay could not arise in the case of men who were engaged on a sessional and not a salaried basis.

Medical Staff of the Ministry of Pensions.—Mr. Robert Young asked the Minister of Pensions, on April 19th, the number of naval and military medical officers of the regular services employed by the Ministry who were in receipt of pensions, and how many received pensions over £500 a year. Major Tryon replied that there were twelve regular naval or military men employed on a salaried basis in the Ministry in various parts of the country who were in receipt of pension in respect of naval or military service. Inquiry would be made as to the amount in each case.

Medical Examination for Government Employment.—Mr. Crooks asked, on April 19th, whether, in view of the physical deterioration consequent on the experience of the war, instructions would be given for discontinuance of the practice of medically examining the applicants for employment in the various Government departments. Mr. Baldwin (Financial Secretary to the Treasury) said that the Order in Council of March 22nd, 1918, adopted the recommendations of Viscount Gladstone's Committee (Cmd. 34) in regard to the conditions under which Civil Service certificates for permanent appointments should be issued to candidates whose health had been impaired by war service, and gave power to relax to a very great extent the ordinary physical standard for certification. The power of relaxation had been largely used, and he thought it would be generally agreed that these concessions went as far as could reasonably be expected.

The Provision of Artificial Limbs.—In reply to Mr. Alfred Davies, Major Tryon said that the number of pensioners in the North-Western Region with amputations of a leg and arm respectively was 3,550 and 1,500. All these pensioners had been fitted with artificial limbs. In addition there were about 140 serving soldiers who were not yet ready to be so fitted. The cost of maintaining the limbs in repair, both prior to the supply of the second artificial limb and after was borne by the Ministry of Pensions. The issue of second limbs had been proceeding steadily since last October.

Milk Adulteration.—In reply to Lieut.-Colonel Pinkham, Commander Eyres-Monsell, for the Minister of Agriculture, said that the warranty defence provisions of the Food and Drugs Act in the case of milk was amended by the Milk and Dairies (Consolidation) Act of 1915, but the operation of this Act was suspended during the war, and it was proposed to introduce legislation to amend it in certain particulars before bringing it into operation.

The Health of the People.—On April 14th Mr. Clough asked the Minister of Health a question on the report on the physical examination of men of military age by National Service medical boards. Dr. Addison replied that the report was only part of a mass of evidence indicative of the need for a reorganization and extension of public health services and for better housing, and it was impossible within the limits of a reply to a parliamentary question to set out all the steps to this end which had been taken or were in contemplation.

The Administration of Anaesthetics.—Mr. Gilbert inquired, on April 14th, whether, in view of the number of inquests held in London on persons who had died under anaesthetics, the Minister of Health would ask the Medical Research Council to inquire into the question of anaesthetics and their administration; and whether, if this could not be done, he would have the recommendations of the Home Office Departmental Committee of 1910 on the same subject put into practice. Dr. Addison replied that, having regard to the scientific investigations that had been made in comparatively recent years, he was not at present convinced that there was need for a further investigation of the character suggested, but he would give the matter his careful consideration.

Scotland.

GENERAL NURSING COUNCIL FOR SCOTLAND.

THE constitution of the General Nursing Council for Scotland, established by the Nurses' Registration (Scotland) Act, 1919, has now been completed. The Privy Council has appointed Captain Charles B. Balfour, C.B., Lord Lieutenant of Berwickshire, and the Scottish Education Department Miss Norah Milnes, B.Sc., Director of the School of Social Study in the University of Edinburgh. The Scottish Board of Health has appointed Dr. A. K. Chalmers, M.O.H. Glasgow; Dr. Katherine Clark, assistant medical officer, Edinburgh Education Authority; Dr. H. E. Fraser, Medical Superintendent, Royal Infirmary, Dundee; Colonel D. J. Mackintosh, C.B., M.V.O., M.B., Superintendent to the Western Infirmary, Glasgow; and nine nurses, including the lady superintendents of the Royal Infirmary, and the Royal Hospital for Sick Children, Edinburgh, and of the Royal Infirmary, Glasgow.

SMALL-POX IN GLASGOW.

Though the number of cases of small-pox in Glasgow is not large the prevalence has not ended; 6 fresh cases recently reported raise the total number in Glasgow since the outbreak began to 28, and there have been 2 cases outside the city boundary. One of the cases most recently admitted is an unvaccinated child. In a recent report Dr. A. K. Chalmers, M.O.H. for Glasgow, states that the cases have fallen into groups between which no connexion has been discovered. This fact, together with the occurrence of certain detached cases, suggests that the infection in some instances may have been derived from unrecognized cases among the population. In one group of 7 cases 2 were discovered before the first was recognized. The infection is believed to have been derived from a ship on which small-pox was known to have occurred; it reached the Thames on January 24th, and the stewardess, who was not herself known to have suffered from small-pox, reached Glasgow on January 25th; her parents sickened, the one eighteen days after the daughter's arrival, and the second fourteen days later. The first case of another group was a miner, who also carried on business as a fruit hawker, and went about his work until the eruption appeared on February 28th; his wife and two children, who had been removed to the reception house for observation, were transferred to hospital on March 16th and 17th respectively. In another small group the source of infection could not be traced. Two cases at Govan were sisters of a man who worked as a carpenter on a vessel which had arrived in London early in March from Alexandria; small-pox is prevalent there, and several cases occurred on the voyage. The carpenter, as also another man, in whom, before the diagnosis of small-pox was made, malignant scarlet fever was suspected, died. Dr. Chalmers considers it established that unrecognized cases of small-pox are occurring among the population, most likely in mild forms, and thinks it probable that the patients are continuing their daily avocations. He states that since the passing of the Vaccination Act of 1917 the proportion of infants successfully vaccinated in Glasgow has continuously decreased, until at the present time probably no more than half the number born are protected, in place of about 84 per cent. before the passing of the Act. Little difficulty, he states, is being found in inducing those in whose neighbourhood cases are occurring to submit to vaccination. It is proposed to open the tuberculosis dispensaries in the evenings for the purposes of vaccination.

England and Wales.

TRAINING FOR BLIND, DEAF, AND CRIPPLED STUDENTS.

SCHOOLS for the blind have been provided and maintained by local education authorities since the passing of the Education Act of 1893, and the voluntary associations for giving employment to the blind now receive grants from public funds, in accordance with the regulations made in 1919 by the Ministry of Health. In draft statutory rules and orders,[1] issued under Section 44 of the Education Act, 1918, the Board of Education now makes provision for the linking up of these first and last stages in the training of the blind, and the conditions are set forth on which are dependent the payments of grants to training institutions, whether provided by local authorities or by voluntary agencies. As a rule, the pupils will be those who, at the age of 16, have left the special elementary schools, but others may be admitted, subject to the Board's approval. Care is to be taken that besides acquiring manipulative skill in his branch of training, the student shall receive such instruction in the commercial aspects of the trade (especially the source and cost of materials and the business of buying and selling) as will qualify him later on to acquire and conduct a business of his own. Provisions of similar nature are to be made for the deaf and crippled.

MEDICAL DINNER AT HARROGATE.

The first post-war annual dinner of the Harrogate Medical Society took place at the Prospect Hotel on April 15th, and was attended by some seventy medical men of Harrogate and district. Dr. W. Bertram Watson, President of the society, occupied the chair. The guests included Sir Berkeley Moynihan of Leeds, Dr. Bedford Pierce, President of the Medico-Psychological Association, Dr. W. H. Willcox, physician to St. Mary's Hospital, London, and the Mayor of Harrogate (Alderman J. Shepherd). After the loyal toasts, the Mayor, in reply to the toast of the Corporation, proposed by Dr. Solly, affirmed the willingness of the corporation to carry out the improvements necessary for the advancement of the town. Sir Berkeley Moynihan, in proposing the health of the Society, referred to the proposed institute for investigation, somewhat on the lines of Duff House, where patients exhibiting early errors of metabolism would find at their disposal the best pathologist, radiographer, and biochemist they could get. He hoped the scheme would shortly materialize, as it was a long-felt want, for team work was essential to-day. Harrogate was extraordinarily fortunate in the opportunities for research. The President, in reply, said that the Society now numbered eighty-six members. The keynote of medical work must be increased efficiency; the founding of the new institute was a great step forward. The toast of the Visitors, proposed by Mr. Frankling, was responded to by Dr. Bedford Pierce and Dr. Willcox; the latter, in the course of his remarks, said he would look forward to seeing the Royal Bath Hospital with its 160 beds fully equipped as a model for scientific research for the benefit of each patient. In the course of the evening the Gordon Black Golf Cup was presented to Dr. H. P. Thompson by the donor. The proceedings terminated with a vote of thanks to the President, proposed by Dr. David Brown.

NORTH OF ENGLAND EDINBURGH UNIVERSITY CLUB.

The annual dinner of the North of England Edinburgh University Graduates' Club, which had been in abeyance since 1914, was held on April 13th at the Central Station Hotel, Newcastle. The President of the Club, Professor T. Eustace Hill, M.O.H. for Durham, was in the chair, and the guest of the evening was Dr. Claude B. Ker, Medical Superintendent of the City Hospital, Edinburgh. The toast of Alma Mater, proposed by the President with musical honours, was responded to by Dr. C. B. Ker in a racy speech full of reminiscences of past and present teachers in the Edinburgh School. Later in the evening he delighted the gathering with a recitation of the "Hunky Kid" in his own inimitable style. The toast of the sister universities was proposed by Mr. Robert Pybus, M.A., and responded to by Professor W. E. Hume. During the course of the evening songs were contributed by Mr. J. Duncanson and Mr. T. Edwards. The dinner was very successful and was much enjoyed.

[1] Cmd. 653. Price 1d.

THE report of the Fuel Research Board of the Department of Scientific and Industrial Research for the years 1918 and 1919 has been placed on sale and can be obtained through any bookseller, price 1s. 6d., or direct by post from H.M. Stationery Office, Imperial House, Kingsway, London, W.C.2, price 1s. 8½d. Among the subjects dealt with are air pollution, domestic heating, and alcohol as fuel.

Correspondence.

TUBERCULOSIS AS AFFECTED BY THE WAR.

SIR,—Are we not rather tending to emphasize unduly the effect of the war on the incidence of tuberculosis in this country? Press allusions are frequent to "alarming results" in this direction. In the JOURNAL of last week there are two references of the kind.

What are the facts? A certain increase in mortality from tuberculosis has been recorded for England and Wales during the period. The increase is not equal in distribution or universal. In some parts of the country the contrary is the case—there has been a decrease.

In Scotland the mortality "from all forms of tuberculosis" and "from pulmonary tuberculosis" has fallen notably since the outbreak of the war up to the end of 1919. The Registrar-General's figures show:

Death Rates per 100,000 of the Population.

	From All Forms.	From Pulmonary Tuberculosis.
1913 ...	... 170 ...	 108
1919 ...	... 129 ...	 88

It is particularly to be noted that during 1919 there has been a phenomenal drop in both columns—namely, from 158 (1918) to 129 per 100,000 in the one case and from 107 (1918) to 88 per 100,000 in the other. A similar remarkable drop during the past year is recorded from New York State.

In the face of such evidence the alarmist attitude seems hardly justifiable or helpful.—I am, etc.,

Edinburgh, April 18th. R. W. PHILIP.

THE TREATMENT OF CANCER OF THE UTERUS.

SIR,—Dr. Herbert Spencer's humour lacks neither robustness nor avoirdupois. But it is inopportune.

In England and Wales alone 4,000 women a year die of cancer of the uterus. What are we going to do about it? A leader writer in the principal organ of medical opinion in this country, despairing of what he imagines to be the results of radical operative treatment, bids us pause and contemplate three fortunate results that followed a sort of operation (which, by inference, Dr. Spencer in his paper condemned), and asks us to listen to the note of confident hope from certain foreign radium "merchants." I cannot understand the psychology of any one who can affect gladness at the pronouncement.

A considerable number of observations have been made in this country and abroad on the frequency with which the parametrial tissues are invaded in operable cases of cancer of the cervix. In from 50 to 70 per cent. these tissues are found to be involved, whilst the pelvic glands show cancerous deposits in at least one-third of the cases. Further, in an appreciable number of cases the pelvic glands are affected where the parametrial involvement has escaped detection. The figures relating to the parametrium are, beyond doubt, understatements, for the obvious reasons that it is impossible for anybody to examine microscopically the whole of the parametrial tissues or to be sure of recognizing isolated cancer cells. No man can palpate a solitary cell in a lymphatic vessel, and a single cancer cell left behind may be responsible for the recurrence. In fact, it is doubtful if any gynaecologist could recognize by palpation even a million such cells distributed through the parametrium. Such being the case, we can appreciate the absurdity of the claim to be able to select for operation cases of cancer of the cervix at such an early stage that lymphatic dissemination has not yet occurred. If, then, the surgeon does a kind of operation that cannot possibly encompass these danger zones and the patient remains free from recurrence, what is such a "proud result" to be called? "Luck" is my name for it. Perhaps Dr. Spencer can supply a more fastidious designation?

But, some may say, granting the pathological conditions are such as you describe (and none can seriously dispute them), what about the mortality of the radical operation? The more restricted the operation the lower is the operative mortality but the higher the recurrence mortality. Which would you choose if you were the patient—to have a 2 to 3 chance of absolute cure and run the risk of not surviving the extended operation, or to survive the restricted operation and have the odds of at least 30 to 1 against the possibility of cure, to live through weeks of anguished waiting for the sure but laggard footsteps of remorseless death? The answer is not doubtful.

The successful treatment of cancer in general demands a knowledge of the broad facts of surgical pathology and the most exacting surgical technique. The better the latter, the lower the operative mortality.—I am, etc.,

Pathological Laboratory, The Cancer Hospital, S.W., April 19th. ARCHIBALD LEITCH.

DENTAL CARIES AND ORAL OSMOSIS.

SIR,—You have done me the honour of criticizing my theory, and I am very pleased to see my name in your famous journal.

That in a conservative country like England a new theory must be beaten is evident. Why? Of course, because it is new. But the matter is a little different in this case. A new theory of the population of Jupiter or the currents of the Arctic Sea can be crushed or favourably taken up, and the world moves on without any perceptible disturbances. But in this case, as said, the matter is somewhat different. Every year that the dental and medical world embraces the carbohydrate theory means that millions of British children lose many millions of teeth with its social and individual consequences.

For, you must confess, the hypothetical knowledge of the origin of dental caries being caused by lodging fermented carbohydrates has in no direction helped us to stop the increasing wave of decay.

Certainly you will also agree with me that it is easier to crush a theory than to smoke a cigarette, and you will also agree that the usual way of doing this is to carefully avoid or extract the strong points and concentrate upon any weak or subordinate facts.

I adduce a series of proofs showing the untenability of Miller's theory. As I have said in the critique of the chapter in question, some of these proofs are weaker, others are stronger. You skip all the irrefragable ones and take up only the weakest, citing that I "triumphantly point to the cessation of the carious process after burial as a proof of the innocence of the bacteria, ignoring the lower temperature and absence of food supply." But how is this explained in my book?

> It is a singular fact that whereas the body, buried in the earth, will quickly be completely annihilated, the teeth, on the contrary, offer for many thousand years a resistance against decomposition. Among these teeth some may also be carious. Death has stopped instead of hastening the decomposition of the teeth, whereas, in conformity with the hypothetical chemico-parasitic theory, we should have expected the contrary, independently of the question if parasites or saprophytes are the cause of the annihilation. The destruction of the teeth seems, consequently, to be dependent upon a natural power which is irrespective of the common chemical nivelation process of animal life.

As you see, you have quite misunderstood my meaning. In this connexion you further accuse me of turning "a blind eye to awkward facts," and refer this to bacteriology. I do not agree with you that medical science has a correct idea of the bacteriological principles and the relationship between bacteria and disease.

To a medical man bacteria and disease are, as a rule, synonymous. And to him bacteria are the origin of a disease. But a scientist in biology has a somewhat different opinion. To him the matter presents itself as follows: We have inside and outside the body millions of micro-organisms, perhaps twenty to thirty of which are injurious, and this under quite special circumstances only. These circumstances just involve the rather or partially unknown factor which makes it possible for microbes to enter the body, where the micro-organisms are thus the *secondary* factor. In my theory you get detailed proofs of what it is in teeth that forms the base for the micro-organical invasion, which also there is a secondary factor. I never said that caries is independent of bacteria.

You write: "We would, however, prefer to adopt the generally accepted opinion that it is only in later stages of decay that a discoloured tract extends to the pulp." You thus "prefer to adopt" my discovery proven by plenty of sections and easily controlled by everybody who wishes to find the truth, as a fancy, and why? Because in this easy way you will be able to disregard disagreeable facts.

My claim as to symmetrical caries being inexplicable under the carbohydrate theory you simply turn to the

favour of this latter theory, saying that the symmetrically appearing caries gets its natural explanation from "symmetrically" lodging food. If you will kindly re-read the chapter in discussion you will certainly find that the cases I relate absolutely exclude any possibility of ascribing them to "lodgement of germs and carbohydrates." You quite misunderstand my figure of caries spread along the interglobular layer. I have—well to observe—given this plate of caries without the plasmoid canal. A broad carious attack must, however, have a correspondingly broad plasmoid canal, which is invariably the case. I quite understand your joy in being able to invent, instead of the disagreeable name "osmosis," such a happy sentence as "merely an expression of the normal life-activity of the dentine." But my claim that osmosis is the principal factor of caries is the result of careful experiments.

Crystalloid sugar you cannot reckon to carbohydrates, and its power, if any, of forming acids is minimum, and yet you must agree that sugar is the principal caries devastator in human teeth. How will you explain this?

Finally, I once more repeat that the careful study and acceptation of my theory will be of benefit by saving millions of teeth to the British nation.—I am, etc.,

Malmö. RAGNAR ECKERMANN, Dr.Sc., L.D.S.Malmö.

⁂ Our reviewer writes that he must abide by the opinion of Mr. Eckermann's theory expressed in the review and that he has looked for but failed to find the caries canals, on the presence of which so large a part of Mr. Eckermann's theory depends.

CARCINOMA OF THE THYROID.

SIR,—Malignancy of the thyroid gland, whatever the type, is rare. Mr. A. J. Blaxland's case of adeno-carcinoma of the thyroid gland (March 27th, p. 454) is interesting, both from the point of view of the patient's age and the early recognition and so far successful eradication of the growth.

The common age of appearance of these tumours is about forty years, and the appearance of a hard swelling in the thyroid gland of a patient forty years and upwards which gradually increases in size should always arouse a suspicion of malignancy.

Unfortunately it has never been my experience to come across a case of adeno-carcinoma of the thyroid gland in which operation could be said definitely to have effected a cure. The early involvement of the trachea and surrounding structures in this situation as the growth becomes extracapsular, renders this type of tumour perhaps the most difficult of any to eradicate. Indeed the earliest symptom may be cough and a blood-stained expectoration caused by ulceration of the growth into the trachea.

A very early recognition before the growth has become extracapsular is the clue to successful eradication, and on the first the prognosis will depend. Mr. Blaxland's Case I, so far, well illustrates this point.

Some years ago I saw two cases of adeno-carcinoma of the thyroid gland. The patients were in a Poor Law institution, and some weeks previously what proved to be unsuccessful attempts had been made to remove the growths. Recurrence had taken place in the operation wounds of both and advanced malignant manifestations were present, in that nerves were involved causing pain of a most intolerable kind, the wounds were fungating and foul, dyspnoea was a conspicuous symptom and dysphagia was present in one of them. The facies, portraying fear of suffocation, coupled with the physical pain these two poor creatures endured, formed a picture of human suffering never to be forgotten. One died from septic pneumonia as a result of ulceration of the growth into the trachea, whereas a brisk secondary haemorrhage mercifully and rapidly ended the other's suffering.

Glandular involvement in these cases I have found to be a later manifestation, and in this respect differs from the papilliferous carcinomas. Its occurrence is of very bad omen.—I am, etc.,

Bradford, March 29th. BASIL HUGHES.

AORTITIS AND AORTIC REGURGITATION.

SIR,—The record of a case published in the issue of your contemporary the *Lancet* of April 10th tempts me to comment upon the paper by Dr. MacIlwaine dealing with the connexion of syphilitic aortitis with aortic regurgitation (BRITISH MEDICAL JOURNAL, March 27th p. 428).

The case recorded by Dr. W. Gordon in the *Lancet* is one in which a case of aortic regurgitation of rheumatic origin lasted for thirty years. Although this is exceptional even for a rheumatic case, it illustrates the less serious nature of aortic regurgitation of rheumatic origin compared with that of aortic regurgitation following aortitis. One important detail of the morbid anatomy of aortic regurgitation following aortitis has possibly not been sufficiently noted by Dr. MacIlwaine. This is the disease of the cardiac muscle which follows interference with the circulation through the coronary arteries, the orifices of which are almost invariably seriously obstructed by the disease of the aorta. It is this disease of the cardiac muscle which entails the risk of sudden death, and also, it may be mentioned, gives rise to the pain on the presence of which Dr. MacIlwaine lays stress.

It should be stated, perhaps, that in cases of aortic regurgitation of rheumatic origin the cardiac muscle often shows considerable disease—more, it seems to me, than can be accounted for by previous rheumatic myocarditis. While this is so, it is in the cases of aortic valvular disease associated with syphilitic aortitis that disease of the cardiac muscle is of predominant importance.—I am, etc.,

Norwich, April 17th. THEODORE FISHER.

PUBLIC HEALTH VERSUS THE STATE.

SIR,—With your indulgence I would remind Dr. Baskett that during the war a considerable number of beds in our civil hospitals were reserved for sick and wounded soldiers, and would explain to a large extent the unwonted run on Poor Law beds, and I would also remind him that times of stress are not entirely confined to the shiftless.—I am, etc.,

H. W. FREER, M.R.C.S.Eng.,
Colwyn Bay, April 14th. L.R.C.P.Lond.

WAR HONOURS.

SIR,—I believe every third man called up for military service will receive a pension or some equivalent form of compensation. Then there are those who have had bestowed upon them medals or letters of distinction after their names. Again, of the civil honours already conferred the daily papers remind us how liberally these have been distributed. The long chain of organization in the execution of this great war needed all the acumen, intelligence, skill, and ingenuity in piecing its links together. They gave way repeatedly, but were fearlessly adjusted. And as each broken link was renewed the strain of the pull seemed strengthened. We learnt the power of its resistance when the final effort came. It was not one, two, or more links which gave this vim to the organization of the chain, but it was the one long piece of machinery—British grit. And thus the enormous difficulty of the Government in bestowing their war honours. Everyone, then, appears to be entitled to a reward, monetary or other, and, if in one case, so in hundreds of other professional men—are they not worthy of war honours?

In serving at the home front, for I was beyond military age, I systematically released my professional brethren in a large city for the period of the war. But what is doubly interesting to me, as an old member of the British Medical Association, I was able to help support a professional front. And in reviewing the cement of our professional work, I find that the "pointing" shows no cracks. Professional rivalries, disputes, jealousies, and whispered confidences have linked themselves together into a solid unbroken chain. I have received my war honour at a professional dinner in this city in which members rose remarking, "not only has my practice been kept together, nay it has been improved." Again, the chief medical officer writes me: "What you have done in the borough during the last four or five years has won you the esteem of the profession."—I am, etc.,

April 17th. ANOTHER WHO WAS OVER AGE.

THE Civil Governor of Madrid has made vaccination against small-pox and enteric fever compulsory for all the inhabitants.

INTERNATIONAL HEALTH CONFERENCE.

THE delegates attending the International Health Conference held at the Ministry of Health last week were the guests of the Government on April 15th at a luncheon given at the Carlton Hotel, London. The Minister of Health, Dr. Addison, presided.

The Conference was convened by Dr. Addison at the request of the Council of the League of Nations. Its first purpose was to consider the constitution of an International Health Office under the League, an idea roughly parallel to that of an International Labour Office under the League. Although the Covenant of the League did not provide for the establishment of an International Health Office in quite the same way that it provided for the establishment of an International Labour Office, nevertheless the Covenant clearly contemplates such an office, and it was in the knowledge that it would meet with sympathetic support from other nations of the League that Dr. Addison took the initiative and convened a preliminary informal Conference in July, 1919, which has been followed by the formal Conference last week.

A second purpose of the Conference was to discuss and advise as to measures to be taken in connexion with the typhus outbreak in Poland. Poland lies between the West of Europe and the typhus epidemic which is now raging in Russia. The country is without sufficient means to establish any satisfactory barrier against the spreading westwards of that disease. Not only is there difficulty owing to the indeterminate state at present of Poland's eastern boundaries, but there are the difficulties also arising from lack of medical personnel, sanitary stores, and money. The Conference discussed how best these difficulties might be met in the interests not only of Poland but of all Europe alike. The chairman of the Conference was Viscount Astor. The delegate representing Great Britain was Dr. G. S. Buchanan, C.B., with Dr. Steegmann as technical adviser. Sir George Newman, K.C.B., attended when his other engagements permitted, but the British vote was given by Dr. Buchanan.

The Services.

R.A.M.C. FUND AND OFFICERS' BENEVOLENT SOCIETY.

THE annual general meeting of the Royal Army Medical Corps Fund (Regular Army) will be held in the Library of the Royal Army Medical College, Grosvenor Road, S.W., at 2.30 p.m. on Monday, June 14th. The Director-General will preside. It is hoped that all subscribers who can spare the time will be present and will freely express their views on any point connected with the fund.

The annual general meeting of the Royal Army Medical Corps Benevolent Society (Regular Army) will take place immediately afterwards.

Any officers desiring information regarding these funds are requested to communicate with the Secretary, Lieut.-Colonel E. M. Wilson (76, Claverton Street, S.W.1, Tel. Victoria 2722), beforehand, so that there may be no delay in dealing with any questions asked.

R.A.M.C. CENTRAL MESS FUND.

THE annual general meeting of subscribers to the Royal Army Medical Corps Central Mess Fund will be held in the Library of the Royal Army Medical College on June 14th, following immediately that of the Royal Army Medical Corps Officers' Benevolent Society. Officers desiring information about this fund are asked to communicate with the Honorary Secretary beforehand, so that there may be no delay in dealing with any questions which may be asked. Notice of any definite proposal which it may be desired to bring forward should be sent to the Honorary Secretary, Captain J. T. Clapham (3, Homefield Road, Wimbledon, S.W.; Tel. Wimbledon 750), in order that it may appear on the agenda paper.

The annual corps dinner will take place the same evening at the Wharncliffe Rooms, Great Central Hotel, at 7.30 p.m. A separate notice will be issued.

UNITED SERVICES MEDICAL SOCIETY.

THERE will be a meeting of the United Services Medical Society in the Library of the Royal Army Medical College, Grosvenor Road, S.W., at 3.30 p.m. on May 28th, 1920, to discuss the proposed amalgamation of the Society with the War Section of the Royal Society of Medicine.

A PENSIONS HANDBOOK.

THE *Local War Pensions Committees' Handbook*, which consolidates the circulars and instructions issued by the Ministry of Pensions, other than those concerning the functions of the Special Grants Committee, has now been placed on sale (price 2s.) by H.M. Stationery Office. It is arranged in five parts, corresponding with the main divisions of the work of the Local Committees; it replaces the Instructions for the Assessment of Alternative Pensions, 1917, Instructions and Notes on the Treatment and Training of Disabled Men, 1917, Instructions on the Treatment of Disabled Men, 1918, and Ministry of Pensions Circulars issued prior to January 1st, 1920. Among the Appendices is the complete text of the Royal Warrant of December 6th, 1919, under which soldiers' pensions are awarded. This handbook should be of value to Local Committees and medical officers, and facilitate the working of Pensions administration.

Universities and Colleges.

UNIVERSITY OF GLASGOW.

THE History of Medicine Prize, value about £50, will be awarded for the best essay on some subject in the history of the science or practice of medicine, other than a subject of recent development in some limited branch thereof. Candidates must be graduates of the university. A work on the history of medicine, published by a candidate within the years 1919, 1920, and 1921, will be admissible.

Faulds Fellowships.

Regulations for the Faulds Fellowships instituted under the will of Mr. W. B. Faulds, writer, in Glasgow in the faculties of Arts, Medicine, Divinity, and Law respectively have been approved. A fellowship will be awarded by the Senatus, on the recommendation of the Faculty concerned. In considering the applications of candidates the Faculty will take into account the candidate's general academic record, the evidence of his capacity for advanced study inquiry or research, and the results of any independent work, published or unpublished, which he may have undertaken. The Faculty may, if it thinks fit, arrange for such trial and oral or practical examination as it may deem necessary to distinguish between candidates of apparently equal merit. Each Fellow must devote himself to a branch of advanced study, inquiry, or research recommended by the Faculty, which may appoint one of its number or a lecturer of the university to be responsible for the general direction of the Fellow's work and to make an annual report on its progress. A Fellow may be required to deliver lectures or otherwise assist in the public teaching of the Faculty in a subject connected with his special work, but may be authorized to carry on his work, during one year, elsewhere than at the University of Glasgow. No Fellow must engage in professional work or practice or any other occupation during his tenure of office, save with the express permission of the Senatus, which shall not be granted unless found expedient in the interest of his work as Fellow. Candidates for the fellowship in medicine must be men who have within the three academical years immediately preceding the award completed the medical curriculum by passing the final professional examination required for graduation and taken the degrees of M.B., Ch.B.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY council was held on April 8th, when Sir George Makins, president, was in the chair.

Election to the Fellowship of Members of Twenty Years' Standing.—The following were elected: Henry Alexis Thomson, C.M.G., Professor of Surgery in the University of Edinburgh; Wilfred Thomason Grenfell, C.M.G., Superintendent of the Labrador Medical Mission of the Royal National Mission to Deep Sea Fishermen.

Donations.—The thanks of the Council were given to Sir C. Kirkman Finlay for presenting, through Mr. J. G. Turner, F.R.C.S., the skulls of twenty Burmese and four Chinese, who were executed in gaols in Burmah. Thanks were given also to Sir Rickman Godlee for presenting the original drawings which he made for his *Atlas of Human Anatomy*, 1880; and the calvaria of the patient he trephined in 1884 for the removal of a cortical tumour—the first operation of its kind.

The late Mr. George Arthur Wright.—A vote of condolence was passed on the death of Mr. George Arthur Wright, who died March 23rd at the age of 68, and who was a past member of the Council.

Three vacancies on the Council of the Royal College of Surgeons of England will be filled on Thursday, July 1st. The retiring members are Sir Anthony Bowlby, Mr. W. Harrison Cripps, and Sir D'Arcy Power. Mr. Cripps is not seeking re-election, the other two retiring members are coming forward again.

The constitution of the Council at present is as follows:

President. — Sir George Henry Makins, G.C.M.G., C.B., (1) 1903, (2) 1911, P. 1917.

Vice-Presidents.—Sir Anthony Alfred Bowlby, K.C.B., K.C.M.G., K.C.V.O., C. (1) 1904, (2) 1912; Sir John Bland-Sutton, C. (1) 1910 (2) 1918.

Other Members of Council.—William Harrison Cripps, C. (1) 1905 (substitute till 1908), (2) 1909, (3) 1917 (substitute till 1920); Sir Charters James Symonds, K.B.E., C.B., C. (1) 1907, (2) 1915; Mr. William Frederick Haslam (Birmingham), C. (1) 1908, (2) 1916; Sir Charles Alfred Ballance, K.C.M.G., C.B., M.V.O., C. (1) 1910, (2) 1914; Sir D'Arcy Power, K.B.E., C. 1912; Sir Berkeley G. A. Moynihan, K.C.M.G., C.B. (Leeds), C. (1) 1912 (substitute till 1919), (2) 1919; Mr. James Ernest Lane, C. 1913; Mr. Holburt Jacob Waring, C. 1913; Sir William Thorburn, K.B.E., C.B., C.M.G. (Manchester), C. 1914; Mr. William McAdam Eccles, C. 1914; Mr. Charles Ryall, C.B.E., C. (1) 19 4 (substitute), (2) 1915); Mr. Walter George Spencer, O.B.E., C. (1) 1915 (substitute), (2) 1918; Mr. Frédéric François Burghard, C.B., C. 1915 (substitute till 1921); Sir Herbert Furnivall Waterhouse, C. 1915; Mr. Thomas Horrocks Openshaw, C.B., C.M.G., C. 1916; Mr. Raymond Johnson, O.B.E., C. 1916; Mr. Vincent Warren Low, C.B., C. (1) 1916 (substitute), (2) 1917; Mr. James Sherren, C.B.E., (1) 1917; Sir John Lynn-Thomas, K.B.E., C.B., C.M.G. (Cardiff), C. 1918 (substitute till 1925); Mr. Ernest William Hey Groves (Bristol), 1918; Sir Cuthbert Sidney Wallace, K.C.M.G., C.B., 1919.

The medical schools are represented as follows:

London:	
St. Bartholomew's	5*
Charing Cross	1
Guy's	1
King's College	1
London	2
Middlesex	1
St. Mary's	2
St. Thomas's	3
University College	1
Westminster	1
Special London Hospital	1
Total London	19
Provincial:	
Birmingham	1
Bristol	1
Cardiff	1
Leeds	1
Manchester	1
Total Provincial	5
Total Council	24

* Out of the five, two offer themselves for re-election this year and one retires.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

Representative on General Medical Council.

AT the monthly meeting of the Fellows of the Royal Faculty of Physicians and Surgeons of Glasgow, on April 12th, Dr. James Alexander Adams, Senior Surgeon to the Glasgow Royal Infirmary, was elected the Representative of the Faculty to the General Medical Council for the period of five years. Dr. Adams succeeds Dr. D. N. Knox, who has resigned on the ground of ill health. Dr. Knox held the office for twelve years.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examinations indicated:

FINAL EXAMINATION.—*Medicine:* D. C. Scotland, T. Poole, J. Stevenson, T. A. du Toit, J. S. Durward. *Surgery:* J. MacGlashan, J. S. Durward, J. H. Bain. *Midwifery:* W. S. Patrick, D. C. Scotland, A. Cuthbertson, T. Poole, W. W. Glucksman, H. W. Whytook, J. MacGlashan, W. G. Carew, A. J. Vakil. *Medical Jurisprudence:* J. G. Collee, R. E. Hopton, J. Hagard, Alexandra M. Limont, R. G. Clouston, Pauline Figdor, Gracie O. D. Evans, A. W. Smith.

The following candidates, having passed the Final Examination, have been admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P. and S.G.

A. C. Lornie, H. Barlow, R. C. Dow, W. Grant, R. Smith, G. S. Barnett, O. Fitzpatrick, G. H. S. Lindsay, H. Cohen, F. P. McN. Clarke, G. M. Kerry, A. S. Paranjpe, E. Isserow, J. F. E. Burns.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

THE President, Vice-President, and Council have elected Professor G. Elliot Smith, M.A., M.D., F.R.C.P., F.R.S., to the Mary Louisa Prentice Montgomery Lectureship in Ophthalmology. The subject of his first lecture will be "The influence of stereoscopic vision on the evolution of man." The lecture will be given in October, 1920.

Obituary.

JOHN BATTY TUKE, M.D., F.R.C.P.EDIN.,

New Saughton Hall, Midlothian.

DR. JOHN BATTY TUKE, who only survived his distinguished father, Sir John, by some seven years, died in a nursing home in London on April 11th. It was known that he was suffering from a serious disease, but the end came unexpectedly early. He was born in 1860, and after passing through the Edinburgh Academy graduated M.B., C.M.Edin. in 1881, and took the degree of M.D. in 1890; he was elected a Fellow of the Royal College of Physicians of Edinburgh in 1889. He first acted as assistant medical officer to the Royal Lunatic Asylum at Montrose, and then as resident clinical assistant to the West Riding Asylum, Wakefield. Thereafter he was associated with his father in the management of the asylum near Edinburgh, first at Saughton Hall (now converted into the beautiful Gorgie Public Gardens), and then at New Saughton Hall, near Polton, Midlothian; latterly he was superintendent in the last-named institution, and had consulting rooms in Edinburgh. He published articles dealing with mental disease, notably a paper on "Recovery after seventeen years' continuous residence in an asylum," and another on "Divorce and insanity," both in 1913. Dr. Batty Tuke was an unassuming man, doing his day's duty silently and well, and he leaves many friends in the profession who will miss him much.

EDWIN ALLAN MALING, M.R.C.S.,

Darlington.

ON April 12th there passed peacefully away, at the ripe age of 81, at Blackwell Hall, Darlington, Mr. E. A. Maling. It is given to few men to lead such a busy, happy, and successful life as his. He was the representative of a well known Sunderland family; his father, Mr. E. Haygarth Maling, was surgeon to the Royal Infirmary, and the founder of the Durham County and Sunderland Eye Infirmary. Mr. E. A. Maling was educated in the Grange School, Sunderland, and King's College Hospital, London. He was the house-surgeon of the Royal Infirmary, Sunderland, for five years from 1860. In those days infectious diseases were received in the general wards, and for some months he attended, practically single-handed, many cases of small-pox and typhus fever during severe epidemics in the town. On leaving the infirmary Mr. E. A. Maling was a partner for ten years of Mr. George Welford, the first surgeon in the North of England to perform ovariotomy successfully. Later he was appointed an assistant surgeon and then full surgeon to the infirmary, a post which he resigned in 1892 in order to make way for his then partner, Mr. John Whitehouse, F.R.C.S., who unfortunately died in November, 1893. From 1892 Mr. E. A. Maling held the post of honorary consulting surgeon. During his surgeoncy Mr. Maling's biggest operation was the amputation of the entire upper extremity of a man for sarcoma of the scapula, which was an operative success. From 1894 to 1903 his partner was Mr. William Robinson, F.R.C.S., the present senior surgeon to the Royal Infirmary.

For forty years Mr. Maling was one of the best known medical men of the town and district; his brisk step, his courteous manners, genial disposition, cheery voice, even temper, and constant readiness for work made him one of the busiest practitioners of the North of England in his day, and although he retired from practice in December, 1903, and went to live in the country, hundreds of his old patients look upon his decease as the loss of a constant friend. Though reserved in speech, Mr. Maling was an excellent judge of character, and his great experience and sound judgement made him a rapid diagnostician. For forty years Mr. Maling was a J.P. for the County of Durham, and for many years past he was chairman of the Sunderland County Bench. He was a keen fisherman.

Mr. Maling married a daughter of the late Mr. James Hartley, for some time M.P. for the borough of Sunderland, who survives him. There are also three sons and three daughters left to mourn his loss. His youngest son, George A. Maling, B.M.Oxon., gained the V.C. early in the war whilst in the R.A.M.C. Mr. Maling read his BRITISH MEDICAL JOURNAL to the last.

DR. GUTHRIE NEVILLE CALEY, of Ealing, who died a short time ago, after an operation, was 58 years of age. He was educated at Durham University and St. Mary's Hospital, took the M.R.C.S. and L.R.C.P.Lond. in 1885, and graduated at Durham M.B. with honours, and M.S. in 1886, and M.D. in 1888. After serving as house-physician, house-surgeon, and ophthalmic clinical assistant at St. Mary's, he went into private practice, and settled some one-and-twenty years ago at Ealing, where he gradually built up a large practice, till at the time of his death he was generally regarded as the leading medical man in the town, and had a large consulting practice. During the war he was consulting medical officer to the Ealing auxiliary military hospital. He was greatly overworked in the later years of the war, when most of his juniors were absent on military service.

Medico-Legal.

AN ABORTIONIST SENTENCED.

THE trial was held last week at the Central Criminal Court, before Mr. Justice Shearman, of Devi Dayal Sasun, L.R.C.P. and S.Edin., L.R.F.P.S.Glasg., of Brady Street, Bethnal Green, for the murder of a young single woman. Sir Richard Muir for the prosecution said that the accused was a panel doctor with 3,600 patients, and was well known in the East-end of London. The allegation was that the woman died as the result of an illegal operation performed by the prisoner for a fee of £10. The prosecution submitted that her body was carried downstairs from his surgery by Dr. Sasun and deposited under an archway. The prisoner himself went up to some policemen in the early hours of the morning and told them "there is a woman lying drunk under the archway," and he accompanied them to the archway. Prisoner's object, said counsel, in calling the attention of the police to the body would perhaps be plain when the jury heard that Dr. Sasun, being the first person to discover the woman, would have been called by the coroner to give evidence and to make a *post-mortem* examination; there could be no safer way for him to get rid of the body and of any suspicion that might attach to himself. Dr. Spilsbury gave evidence that, in his opinion, death was due to shock following an illegal operation. Such occurrences were very rare, but during his long practice he had known of five instances. The prisoner, in the witness box, gave his version of the woman's visit to him and of the finding of the body. Mr. Curtis Bennett, K.C., for the defence, called Dr. Russell Andrews, Dr. Comyns Berkeley, and Dr. Fairbairn, who gave evidence voluntarily; they disagreed with the evidence for the prosecution that death occurred from shock in the circumstances stated. Dr. Fairbairn said that death from shock under such conditions was so rare that it was without his knowledge. The jury acquitted the prisoner of the charge of murder, but found him guilty of manslaughter. Sir Robert Muir said there was another indictment on the file charging Sasun with performing illegal operations on three separate women on different dates, but the judge did not think it necessary to proceed with that charge. A detective inspector stated that he found in the prisoner's safe a large number of documents signed by women, that he took statements from 116 of the women whose names and addresses were on the documents, and that as a result of his inquiries it appeared that abortion had been performed or attempted on all these women. In reply to the judge, he expressed the opinion that prisoner had been carrying on such practices for about fifteen years. In passing sentence of ten years' penal servitude, Mr. Justice Shearman said it was clear to him that Sasun had been a professional abortionist. He had perhaps been a little unlucky in this case because death had resulted, and they did not know whether death had resulted before or not. It was a very bad case.

Medical News.

THE Memorial Brass and Bed to thirty old students of Sir Patrick Dun's Hospital, Dublin, who fell or died on active service, subscribed for by their comrades who also served in the war, are now nearly ready. A circular was sent to 415 old Dun's men who were on active service concerning this memorial, but it may not have reached some. Any who may wish to subscribe will please accept this notice, and communicate at once with the honorary secretary at the hospital.

A POST-GRADUATE course on spa treatment will be held in Bath during June; it has been arranged in conjunction with the Fellowship of Medicine and Post-Graduate Medical Association. It will comprise clinical lectures, demonstrations, and visits to hospital wards during the early part of each day and a lecture each afternoon. The course will open on Monday, June 7th, when an introductory lecture will be given by Dr. Cave, and there will afterwards be a reception at the Royal Mineral Water Hospital. The course will conclude on Saturday, June 19th. An exhibition of *x*-ray photographs, microscopic and pathological specimens, and bacteriological cultures will be open on each day during the course. Further particulars can be obtained from the secretary, Dr. R. G. Gordon, 6, Queen Square, Bath.

A REUNION dinner of those who served with the 1st London (City of London) General Hospital, including its sections and auxiliaries, will be held in the Wharncliffe Rooms, Hotel Great Central, Marylebone Road, N.W.1, on Wednesday, May 12th, at 7.30 p.m. Tickets, price £1 1s., can be obtained before May 7th from the honorary secretary, Lieut.-Colonel W. McAdam Eccles, 124, Harley Street, W.1. Evening or service dress will be worn.

A POST-GRADUATE course of instruction, for qualified medical women, in the treatment of venereal diseases has been arranged jointly by the London (Royal Free Hospital) School of Medicine for Women, the Royal Free Hospital, the Elizabeth Garrett Anderson Hospital, and the London Lock Hospital. The fee for the course, which commences on May 17th at 5 p.m., and concludes on Saturday, May 29th, is 5 guineas. The course will be repeated during the second fortnight of September, beginning Monday, September 13th. Applications should be addressed to the Warden and Secretary, London School of Medicine for Women, Hunter Street, Brunswick Square, W.C.1.

A COURSE of forty lectures on tuberculosis has been arranged at the Medical School, Royal Chest Hospital, City Road, E.C.1, commencing on Monday, May 3rd, and terminating on Friday, June 25th. The fee for the course is 5 guineas.

A 23rd Divisional medical dinner will be held at Oddenino's, Regent Street, London, W., on June 5th, 1920, at 7.15. All ex-medical officers of the above division who wish to attend are requested to send their names (with remittance of 15s. for dinner, exclusive of wine) to Major W. J. Pearson, New University Club, St. James's Street, London, W. Names should be submitted by May 20th.

THE proposal to convert the Medical Sickness, Annuity, and Life Assurance Friendly Society into a company limited by guarantee under the Companies Acts was confirmed at a second extraordinary general meeting held at 11, Chandos Street, W., on April 16th. The reasons for the change were explained in the report of the first extraordinary general meeting published in our issue of April 3rd, p. 475.

INFLUENZA was made notifiable in Vienna at the end of last January.

DURING December, 1919, 1,093 fatal cases of plague occurred in Java.

PROFESSOR ENRICO MORELLI, founder and editor of *Il Policlinico*, died on February 13th.

THE Académie de Médecine has recently elected M. Guillain to be a member, and MM. Truc of Montpellier, Imbert of Marseilles, Moure of Bordeaux, Weill of Lyons, Dévé of Rouen, Girard of Toulon, Mirallié of Nantes, and Crespin of Algiers, to be corresponding members.

THE net amount received in the year ending March, 1919, by the excise authorities for patent medicine labels in Great Britain only, after deducting drawbacks, rebates, repayments, and allowances was £1,065,694. The annual return has not been published during the last few years, but for the year ending March 3rd, 1914, it was £360,377.

DR. CHARLES EDWARDS has been appointed to the Commission of Peace for the Borough of Bridport.

DR. JOHN MACLEAN CARVELL has been appointed M.B.E. for ambulance training and organization, London District, Order of St. John.

SIR JAMES BARR, C.B.E., LL.D., M.D., has been appointed a Knight of Grace in the Order of the Hospital of St. John of Jerusalem in England.

DR. GEORGE E. SCHOLEFIELD, M.B.E., M.O.H. West Lancashire Rural District Council, has been appointed an honorary Associate of the Order of St. John of Jerusalem in England in recognition of services rendered to the St. John Ambulance Association during the past forty years.

PRUSSIA and Baden have decided to create a doctorate of dentistry (*doctor med. dentariae*), with an academic education, eight terms' study, and the licence in dentistry as necessary qualifications.

THE Duty and Discipline Movement has, since it was founded by the Earl of Meath in 1911, collected much useful information concerning the upbringing of children and the formation of character. The Executive Committee are now putting their theories into practice in a manner which should prove of great benefit to parents. Their scheme, called the Parents' Advisory Bureau, is likely also to prove of value to the medical profession, particularly those members who specialize in child psychology. Briefly, the system is as follows: A parent unable to control a child is invited to come to the bureau for advice. A visit is then paid to the home, or perhaps the parent is asked to bring the child to see one of the officers of the movement. By sympathetic questioning, the cause of the conduct complained of can generally be found, but this questioning requires a certain amount of skill and tact which are not found in everyone. Care has been taken that the advice given shall be sound and wholesome. Such case receives personal attention by Mr. C. J. Mead-Allen, the director of the movement, Mr. C. Montgomerie, the secretary, or Dr. Hamilton-Pearson, of 72, Wimpole Street. Practitioners who meet with cases which present interesting features, or which are likely to

add to the store of knowledge in dealing with children, are invited to communicate with the movement, 117, Victoria Street, London, S.W.1, with a view to co-operation.

THE Italian Society of Paediatrics will meet at Trieste from September 23rd to 26th, when the following subjects will be discussed: (1) Vaccine treatment of children's diseases, introduced by Professor Di Cristina of Palermo and Professor Caronia of Naples; (2) infant welfare, introduced by Professor Allaria of Turin and Professor Modigliani of Rome. Communications should be addressed to the Secretary, Professor E. Modigliani, Via Palermo 28, Rome.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin:* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

X asks for suggestions as to the treatment of chyluria in a man who has never resided out of the British Isles, and otherwise is in good health.

ESTABLISHMENT LICENCES.

W. asks whether a medical practitioner is liable to a tax for a driver of a car used for professional purposes.

*** The point is by no means free from difficulty. A "male servant" is defined to include a motor-car driver, and no exemption is given because the driver is employed for professional purposes. Prima facie our correspondent would be liable, but it can hardly be supposed that licences are required in the case of all motor-car drivers—for example, 'bus drivers, or the drivers of tradesmen's delivery vans; in such cases they would probably be regarded as trade employees rather than as male servants. A medical practitioner's driver often acts in both capacities, and in such cases we think that the licence would have to be taken out. Whether it could be insisted on in the case of a driver who did no non-professional driving or any other work may be open to doubt.

ARTIFICIAL APPLIANCE FOR AMPUTATION BELOW THE ANKLE.

A CORRESPONDENT in a remote part of the world asked recently for hints as to how to direct an artificial stump to be made in the case of a supramalleolar amputation; the apparatus would have to be constructed not by an expert, but in the shop of a ship-repairing company.

*** We are indebted to Mr. Muirhead Little, F.R.C.S., for the following reply to this question: A great deal depends upon the nature of the stump. If it has a Syme flap and is suitable for end-bearing, the problem is much simplified. In any case a plaster-of-Paris cast of the stump from the knee-joint down to and including the end should be taken. This should be covered with a thin stocking, and then a blocked leather (sole leather) socket made to fit it closely, taking as much bearing as possible under the head of the tibia. The leather should be well soaked in cold water, applied to the cast wet, and held with a bandage while it dries on the cast. A steel plate about 15 mm. wide and 3 or 4 mm. thick, and long enough to project at least 2 in. below the bottom of the leather socket and to reach nearly to the top of it, should be fixed with copper rivets to each side of the socket. The lower ends of these steels must be fixed with screws on to a hard wood block, of sufficient thickness to equalize the length of the limbs, below the end of the socket. A piece of sole leather or a rubber heel should be fixed to the lower surface of this block. Before applying the leather to the cast to form the socket, a piece of felt at least half an inch thick should be put inside the stocking at the end of the cast, so as to allow a space between the end of the stump and the bottom of the socket. If the stump can bear end-pressure this space is filled by a pad in the finished appliance. If not, it is left empty. If enough support is not obtained by the appliance here described, the side steels must be carried up to form knee-joints, and thigh corset and steels added.

LETTERS, NOTES, ETC.

T.F. AND S.R.

"OPTIMIST" writes: The advice concerning the Territorial Force and Special Reserve given by your correspondent "Quoth the Raven" (March 20th, p. 417) is so thoroughly sound that no medical man can seriously dispute it; but how can his first recommendation—"If you are in either, get out as soon as you can"—be carried into effect? As far as I know suicide is the only method.

JAMAICA AS A HOLIDAY RESORT.

DR. H. G. WHARRY (London, W.1), writing as a recent visitor to Jamaica, strongly advises any medical man who contemplates going there or sending a patient, to make careful inquiries beforehand. By the direct route, which he thinks should be avoided, the voyage, generally unpleasant in winter, may, he says, take from fourteen to twenty-three days; and on arrival at Kingston there may be great difficulty in finding rooms, even though a promise may have been made to reserve them. In other places on the island the same congestion, he says, exists. The prices in Jamaica, he found, were not low, and his view is that a visitor must make up his mind to rough it and pay heavily for the privilege.

LIGHT WINES AND HEAVY PRICES.

PEOPLE with long memories can recall how Mr. Gladstone in one of his budget speeches sang the praises of light French wines, and, to encourage the British to consume more of what he considered a wholesome as well as a palatable beverage, reduced the duty. His recommendation, if not the reduction of the duty, undoubtedly encouraged the importation of light wines, and for a time "Gladstone claret" was a common name for light red French wine. Ever since the duty has been 1s. 3d. or less per gallon—on the average, say, twopence a bottle. Mr. Chamberlain has now doubled it, yet still it is only about fourpence a bottle; but the price of "Gladstone claret" was about 1s. 6d. a bottle, or less, and very ordinary Bordeaux wine now costs 4s. or 5s. a bottle at the wine merchant's. The cause of the greater part of this increase is to be found in the very great increase in the price at Bordeaux. It is now three or four times as much as it was a few years ago. The explanation given by the Bordeaux merchants is that the supply has been diminished by neglect of the vineyards during the war, and also, it is asserted, by the large purchases made for the French army. Some newspapers have interpreted the increase in the excise duty in the Budget as ungracious treatment of our allies, but in this connexion it is only fair to remember that the increase due to the duty is only 5 or 6 per cent. of the total increase in the price to the consumer here.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 33, 34, 38, 39, 40, and 41 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 35, 36, and 37.

THE following vacant appointments of certifying factory surgeons are announced: Blarney (Cork), Kingston-on-Thames (Surrey), Menai Bridge (Anglesey), North Berwick (Haddington).

A SECOND medical referee under the Workmen's Compensation Act, 1906, for the Marylebone and West London (Brompton) County Courts (Circuit No. 43) is to be appointed. Applications to the Private Secretary, Home Office, by May 5th.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	7	6
Each additional line...	0	1	3
Whole single column	6	0	0
Whole page	16	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.